

DAIRY FARM MANAGEMENT

DAIRY BUSINESS SUMMARY NEW YORK STATE 2018



*You can't manage what you can't measure.
But if you measure it, you can improve it!*

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2018 NEW YORK STATE DAIRY FARM BUSINESS SUMMARY AND ANALYSIS*

INTRODUCTION

Dairy Farm Business Summary and Analysis (DFBS) projects are an integral part of Cornell Cooperative Extension's agricultural education program in New York State. The Charles H. Dyson School of Applied Economics and Management of the Cornell S.C. Johnson College of Business, The College of Agriculture and Life Sciences at Cornell University, PRO-DAIRY, and County and Regional Extension staff cooperate in sponsoring DFBS projects. In 2018, over 190 dairy farms participated, including dairy owners, renters, full-time, part-time, organic, and out-of-state farms. Business records submitted by dairy farmers from 36 New York counties provide the basis for continuing Extension programs, data for applied studies, and for use in the classroom. Regardless of the use of the data, confidentiality of individual farm data is maintained.

Cornell Cooperative Extension educators enroll the cooperators and assist with the collection of records. In addition, assistance is provided by Dehm Associates, Chuck Raddick, and by consultants from the Farm Credit East and Yankee Farm Credit Associations. Each cooperator receives a detailed summary and analysis of his or her business. All educators are using a web based program at their offices or on the farm to process and return the individual farm business reports for immediate use. The program used to generate the farm business reports can be found at the website <http://dfbs.cornell.edu>. Progress reports are prepared as farm summaries are completed by Cornell faculty and used by DFBS cooperators and other farmers to compare their farm performance with the most current averages.

The DFBS program helps farmers improve accounting and financial analysis techniques, develop managerial skills, solve business and financial management problems, and plan the future of their business. For more information, please visit <http://dfbs.dyson.cornell.edu>.

Program Objective

The primary objective of the Dairy Farm Business Summary and Analysis Project (DFBS) is to help farm managers improve accounting and financial analysis techniques, develop managerial skills, solve business and financial management problems, and plan the future of their business through the appropriate use of historical farm data and the application of modern farm business analysis techniques.

Format

This report is comprised of five sections. The first section charts the progress of the average dairy farm business over two years. One hundred and forty-eight New York dairy farms participated in the summary both years. The averages of selected business factors are presented for these farms and the changes that occurred from 2017 to 2018 are calculated.

The second section contains charts for additional analysis of New York dairy farms. The top 10 percent of farms (by rate of return on assets without appreciation) are compared to the average for all 156 dairy farms that participated in the 2018 DFBS program. Also presented is the progress of the same top 10 percent of farms from 2017 through 2018.

The third section, a summary and analysis section, lists the average data for the 156 farms that participated in the 2018 DFBS program. The format follows that of the individual farm DFBS printout and contains a brief explanation of each table and chart.

The fourth section presents a condensed summary, herd profiles, and progress of the farm business for farms with less than 225 cows, 225 to 599 cows, 600 to 949 cows, 950 to 1,349 cows, and farms with 1,350 and more cows.

The fifth section contains business charts for key measures of farm business and financial performance for all participating farms.

* This report was written by Jason Karszes, Senior Extension Associate, Lauren Hill, Extension Support Specialist, Abby Christman, Program Extension Admin, with PRO-DAIRY in the Department of Animals Science, and Wayne Knoblauch, Professor, Charles H. Dyson School of Applied Economics and Management at Cornell University.

PROGRESS OF THE FARM BUSINESS

The 2018 business year for the New York State dairy industry was a retreat from the slight rebound that was 2017, with milk prices falling backwards to 2016 levels. While milk prices decreased from 2017, costs continued to increase. Milk production per cow fell slightly, but herd size continued to grow and total milk produced per farm continued to increase. With the combination of changes during the year, a large decrease in profits occurred, resulting in negative changes in the financial position of the average farm participating in the Dairy Farm Business Summary and Analysis Program in New York for 2018.

In both 2017 and 2018, 148 farms in New York participated in the Dairy Farm Business Summary and Analysis Project (DFBS), administered by Cornell Cooperative Extension and Cornell University. Tables 1 and 2 on the following pages show selected factors and receipts and expenses, on a per cow and per hundredweight basis, from the same 148 farms that participated in the DFBS project each of the last two years. Table 3 is a business chart of selected factors for the 156 farms participating for the 2018 business year.

Milk Income. Gross milk prices decreased 7 percent to \$17.24 per hundredweight, a decrease of \$1.24, offsetting most of the increase that had occurred in 2017. Milk marketing expenses increased by \$0.11 per hundredweight, leading to a decrease of \$1.35 in net milk price received on farms. Milk production per cow decreased 1 percent to 25,780 pounds per cow, with participating farms indicating that forage quality challenges for the second year in a row led to the decrease in milk production. With the decrease in milk production along with a decrease in milk price, gross milk revenue per cow decreased 7 percent from the previous year. Average herd size for the participating farms increased by 7 percent to 960 cows. This increase in cow numbers more than offset the small decrease in milk per cow, resulting in total milk pounds shipped per farm increasing by 6 percent. 2018 presented different growing challenges than 2017, with varying degrees of a wet spring into early summer delaying cropping activities. Hay yields decreased 3 percent and corn silage yields increased 4 percent. Cattle revenue fell an additional 20 percent in 2018, while dairy calf revenue fell over 50%.

Cost Control. Farm %, operating costs in 2018 was mostly unchanged, with total operating costs decreasing \$0.06 for the year, to \$17.42 per hundredweight. The single largest expense item, purchased grain and concentrates, increased 2 percent to \$5.79 per hundredweight. Milk marketing, interest, and fuel, oil & grease were the other expenses that increased significantly.

Worker equivalents increased 4 percent, but with the increase in cow numbers, cows per worker also increased 3 percent to 48.7 cows per worker. With the cows per worker increase greater than the decrease in milk sold per cow, milk sold per worker equivalent increased to 1,254,224 pounds, a 2 percent increase. This increase in milk sold per worker offset the increase in cost per worker equivalent of 3 percent, resulting in an increase of just \$0.01 per hundredweight for the hired labor expense.

Machinery repair and maintenance led the way for expense categories that decreased, falling \$0.10 per hundredweight from 2017. A total of 15 different expense categories showed decreases, with custom boarding expenses, custom hire & lease, and real estate maintenance being other expense categories with larger decreases.

Capital Investment. The average investment in the farm decreased 3 percent to \$11,676 per cow. The increase in cow numbers more than offset investment that occurred during the year, leading to a decrease in both investment per cow and depreciation expenses per cow. Depreciation expenses decreased on a per hundredweight basis even with taking into account the small decrease in milk sold per cow, with machinery and equipment depreciation decreasing 9 percent and real estate depreciation increasing 3 percent.

Significant Decrease in Earnings. Profits decreased in 2018 to the levels seen in 2016. The decreases in milk prices, smaller grown feed inventories, decreases in cattle revenue, and little change in farm operating costs all led to a large decrease in earnings. This decrease in margin resulted in the third year since 2014 of low or negative earnings. Net farm income without appreciation decreased to \$126,557. Net farm income with appreciation decreased to -\$1,963.

- Labor and management income per operator/manager decreased over 400 percent, from \$33,785 to -\$104,007 in 2018.
- Rate of return to all capital without appreciation decreased to 1.1 percent, from 3.8 percent in 2017. Rate of return on equity capital without appreciation fell to -0.8 percent.
- Farm net worth decreased by 3 percent.
- Debt to asset ratio increased from 0.33 to 0.35, reflecting the decreased capital investment as debt per cow is relatively unchanged, increasing by \$19 to \$4,043 per cow.

Overall, 2018 was a year showing a return to poor to negative earnings and the third year since 2014 of low to negative earnings for the average dairy farm participating in the DFBS in New York State. While, on average, farms generated small to no earnings in 2018, the changes on individual farms varied, with some farms still reporting strong earnings. Decreases in milk prices, grown feed inventories, and cattle prices weren't offset by the small change in costs and increase in herd size.

Table 1.

PROGRESS OF THE FARM BUSINESS Same 148 New York Dairy Farms, 2017 & 2018, DFBS			
SELECTED FACTORS	Average of 148 Farms		Percent Change
	2017	2018	
<i>Size of Business</i>			
Average number of cows	899	960	7%
Average number of heifers	786	816	4%
Milk sold, pounds	23,323,176	24,745,841	6%
Worker equivalent	19.0	19.7	4%
Total tillable acres	1,720	1,765	3%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,948	25,780	-1%
Hay DM per acre, tons	3.3	3.20	-3%
Corn silage per acre, tons	18.2	19.00	4%
<i>Labor Efficiency</i>			
Cows per worker	47.2	48.7	3%
Milk sold per worker, pounds	1,224,957	1,254,224	2%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.69	\$5.79	2%
Net milk income over purchased grain & conc. per cow	\$2,829	\$2,445	-14%
Dairy feed & crop expense per cwt. milk	\$7.16	\$7.20	1%
Labor and machinery costs per cow	\$1,737	\$1,684	-3%
Hired labor costs per cwt. milk	\$2.95	\$2.96	0%
Hired labor costs per worker equivalent	\$42,104	\$43,238	3%
Operating cost of producing milk per cwt.	\$14.85	\$15.10	2%
Purchased input cost of producing milk per cwt.	\$16.57	\$16.73	1%
Total cost of producing milk per cwt.	\$18.89	\$18.97	0%
Net milk price	\$17.41	\$16.06	-8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,060	\$11,676	-3%
Machinery and equipment per cow	\$1,878	\$1,787	-5%
Asset turnover ratio	0.48	0.42	-13%
<i>Profitability</i>			
Net farm income without appreciation	\$446,131	\$126,557	-72%
Net farm income without appreciation per cow	\$496	\$132	-73%
Net farm income with appreciation	\$689,522	-\$1,963	-100%
Net farm income with appreciation per cow	\$767	-\$2	-100%
Labor & management income per operator/manager	\$33,785	-\$104,007	-408%
Rate return on equity capital with appreciation	7.0%	-2.6%	-137%
Rate return on equity capital without appreciation	3.7%	-0.8%	-122%
Rate return on all capital with appreciation	6.0%	-0.1%	-102%
Rate return on all capital without appreciation	3.8%	1.1%	-72%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$7,469,453	\$7,254,831	-3%
Debt to asset ratio	0.33	0.35	6%
Farm debt per cow	\$4,024	\$4,043	0%
Debt coverage ratio	1.67	0.9	-46%

Table 2.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

Same 148 New York Dairy Farms, 2017 & 2018, DFBS

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	899		960		
Cwt. of milk sold		233,232		247,458	
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,795	\$18.48	\$4,444	\$17.24	-7%
Dairy cattle	\$395	\$1.52	\$311	\$1.21	-20%
Dairy calves	\$50	\$0.19	\$23	\$0.09	-53%
Other livestock	\$13	\$0.05	\$22	\$0.09	80%
Crops	\$127	\$0.49	\$104	\$0.40	-18%
Miscellaneous receipts	<u>\$152</u>	<u>\$0.59</u>	<u>\$173</u>	<u>\$0.67</u>	14%
Total Operating Receipts	\$5,533	\$21.32	\$5,077	\$19.69	-8%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$765	\$2.95	\$764	\$2.96	0%
Dairy grain & concentrate	\$1,478	\$5.69	\$1,493	\$5.79	2%
Dairy roughage	\$91	\$0.35	\$91	\$0.35	0%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$1	\$0.00	NA
Machine hire, rent & lease	\$133	\$0.51	\$123	\$0.48	-6%
Machine repair & vehicle expense	\$248	\$0.95	\$218	\$0.85	-11%
Fuel, oil & grease	\$134	\$0.52	\$153	\$0.59	13%
Replacement livestock	\$9	\$0.04	\$6	\$0.02	-50%
Breeding	\$56	\$0.22	\$54	\$0.21	-5%
Veterinary & medicine	\$164	\$0.63	\$150	\$0.58	-8%
Milk marketing	\$278	\$1.07	\$304	\$1.18	10%
Bedding	\$90	\$0.35	\$83	\$0.32	-9%
Milking supplies	\$90	\$0.35	\$83	\$0.32	-9%
Cattle lease	\$3	\$0.01	\$2	\$0.01	0%
Custom boarding	\$97	\$0.37	\$76	\$0.29	-22%
BST expense	\$11	\$0.04	\$0	\$0.00	-100%
Livestock professional fees	\$17	\$0.06	\$15	\$0.06	0%
Other livestock expense	\$26	\$0.10	\$21	\$0.08	-20%
Fertilizer & lime	\$99	\$0.38	\$101	\$0.39	3%
Seeds & plants	\$120	\$0.46	\$111	\$0.43	-7%
Spray & other crop expense	\$61	\$0.23	\$55	\$0.21	-9%
Crop professional fees	\$9	\$0.03	\$7	\$0.03	0%
Land, building & fence repair	\$69	\$0.27	\$61	\$0.24	-11%
Taxes	\$64	\$0.25	\$62	\$0.24	-4%
Real estate rent & lease	\$77	\$0.30	\$81	\$0.31	3%
Insurance	\$45	\$0.17	\$44	\$0.17	0%
Utilities	\$89	\$0.34	\$95	\$0.37	9%
Interest paid	\$159	\$0.61	\$187	\$0.72	18%
Other professional fees	\$26	\$0.10	\$26	\$0.10	0%
Miscellaneous	<u>\$27</u>	<u>\$0.11</u>	<u>\$24</u>	<u>\$0.09</u>	-18%
Total Operating Expenses	\$4,536	\$17.48	\$4,492	\$17.42	0%
Expansion livestock	\$56	\$0.22	\$33	\$0.13	-41%
Extraordinary expenses	\$5	\$0.02	\$3	\$0.01	-50%
Machinery depreciation	\$252	\$0.97	\$226	\$0.88	-9%
Real estate depreciation	<u>\$188</u>	<u>\$0.72</u>	<u>\$191</u>	<u>\$0.74</u>	3%
Total Expenses	\$5,037	\$19.41	\$4,945	\$19.18	-1%
Net Farm Income w/o Appreciation	\$496	\$1.91	\$132	\$0.51	-73%

Table 3.**Farm Business Chart**

The Farm Business Chart is a tool which can be used in analyzing your business. Compare your business by drawing a line through or near the figure in each column, which represents your current level of performance. The five figures in each column represents the average of each 20 percent, or quintile, of farms included in the summary, with each column sorted independently. The highest 20% of farms in one column may not be in the top 20% for another column. Use this information to identify business areas where more challenging goals or improvements are needed.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

156 New York Dairy Farms, 2018

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ¹	(12)	(12)	(12)	(11)	(11)	(14)	(14)
43.6	2,197	57,046,565	28,187	4.5	22.9	62.6	1,586,179
24.2	1,186	31,638,004	26,794	3.6	20.4	51.4	1,313,795
17.0	798	20,269,309	25,520	3.1	18.8	46.4	1,175,375
9.0	423	10,187,380	24,028	2.5	17.2	41.3	1,008,487
3.4	119	2,498,324	18,427	1.4	10.0	29.5	631,604

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$984	\$4.59	27	\$560	\$1,306	\$1,253	\$5.96	\$22,104
\$1,307	\$5.42	31	\$742	\$1,623	\$1,648	\$6.76	\$37,818
\$1,480	\$5.85	34	\$870	\$1,809	\$1,805	\$7.29	\$41,162
\$1,618	\$6.34	37	\$962	\$1,960	\$1,985	\$7.74	\$44,301
\$1,807	\$6.94	41	\$1,262	\$2,454	\$2,236	\$8.53	\$52,311

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,917	\$18.56	\$13.26	\$17.29	4.6	\$843,587	\$108,022	\$557,205
\$4,613	\$17.53	\$14.46	\$18.71	1.6	\$184,515	-\$32,052	-\$6,945
\$4,396	\$17.17	\$15.27	\$19.71	-0.3	\$45,005	-\$84,997	-\$144,155
\$4,079	\$16.75	\$16.04	\$21.31	-2.7	-\$52,387	-\$156,296	-\$350,702
\$3,164	\$16.10	\$18.50	\$27.02	-8.2	-\$443,792	-\$488,943	-\$1,158,920

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,174	\$899	0.60	0.78	11.12	\$77	95	56
\$10,475	\$1,551	0.47	0.83	1.22	\$317	75	27
\$11,820	\$2,028	0.40	0.86	0.71	\$561	64	18
\$13,366	\$2,553	0.34	0.90	0.34	\$746	54	10
\$17,777	\$3,947	0.23	1.02	-1.14	\$998	35	-13

¹Page number of the participant's DFBS where the factor is located.

COMPARING TO THE TOP 10 PERCENT OF FARMS, 2018

There is a considerable range in business performance every year within the farms participating in the DFBS. To provide insight into areas of difference between farms, the top 10 percent of participating farms by return to all capital without appreciation are summarized and compared to the average of all farms. Table 4 reports on selected business and financial factors, while Table 5 reports the per cow and per hundredweight income and expenses. Tables 6 and 7 report the progress and changes that the same farms from the top 10 percent of farms made from 2017 to 2018. Table 8 is a business chart for the top 10 percent of farms for 2018.

Milk production was slightly higher for the top 10 percent of farms for both pounds of milk and pounds of components, averaging 1 percent more. With similar percent components, the top 10 percent and average of all farms received the same net milk price for the year. While the top 10 percent averaged a bit higher on gross price, they also averaged higher on milk marketing costs, resulting in the same net milk price. The top 10 percent of farms were higher in the dairy cattle, dairy calf, and crop revenue categories. For the top 10 percent of farms, the total income per hundredweight averaged \$20.30, 58 cents higher than the average farm.

The top 10 percent of farms were 81 percent larger than the average herd size of participating farms. While they were 81 percent larger, they only utilized 46 percent more tillable land and 67 percent more labor. Cow numbers per worker were 9 percent higher. With slightly higher milk sold per cow, the milk sold per worker equivalent was 10 percent higher. With slightly lower cost per hired worker coupled with higher labor efficiency, hired labor costs per hundredweight were 6 percent lower for farms in the top 10 percent.

While milk production per cow was 1 percent higher, the purchased grain and concentrate costs of the top 10 percent of farms was also 2 percent lower, or 11 cents per hundredweight. Out of the 31 operating expense categories, the top profit group was lower in 26 of them. Custom boarding was the largest difference, averaging 24 cents higher. Milk marketing, purchased forages, machine hire & lease, and miscellaneous expenses were the other expenses that the top 10% were higher than the average farm. With all costs combined, total farm operating costs for the top 10 percent were 5 percent lower, averaging \$16.59 per hundredweight. This cost was \$0.91 lower than the average of all farms.

The combination of larger herd size, higher non-milk income, and lower costs for the top 10 percent of farms resulted in an average net farm income without appreciation per cow of 372 percent higher. Return to all capital without appreciation averaged 6.2 percent versus 1.0 percent for the average of all farms.

Total investment per cow was different between the two groups, averaging \$11,664 for the average farm and \$9,345 for the top 10 percent. Debt per cow was \$905 lower per cow for the top 10 percent of farms, averaging \$3,192. These farms had an average net worth, or percent equity, of 65 percent, versus 64 percent for the average of all farms.

The business chart for the top 10 percent of farms (Table 8) shows the quintile range for selected factors for the farms, with each category ranked from high to low. The reported range shows that for 2018, the highest profit farms tended to be larger, had above average milk production, higher labor efficiency, and lower total costs of production than the range reported for these same factors for all farms.

Table 4.

DAIRY FARM BUSINESS SUMMARY SELECTED FACTORS156 New York Dairy Farms, All Farms vs Top10%², 2018

SELECTED FACTORS	Average of All Farms	Average of Top 10%	Percent Difference
<i>Size of Business</i>			
Average number of cows	939	1,704	81%
Average number of heifers	797	1,358	70%
Milk sold, pounds	24,187,983	44,346,961	83%
Worker equivalent	19.3	32.3	67%
Total tillable acres	1,719	2,515	46%
<i>Rates of Production</i>			
Milk sold per cow, pounds	25,752	26,023	1%
Hay DM per acre, tons	3.16	3.61	14%
Corn silage per acre, tons	18.96	19.17	1%
Cull rate, percent	33%	30%	-9%
<i>Labor Efficiency</i>			
Cows per worker	48.6	52.7	9%
Milk sold per worker, pounds	1,251,588	1,372,440	10%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.80	\$5.69	-2%
Grain & concentrate purchased as % milk sales	33.84	32.00	-5%
Dairy feed & crop expense per cwt. milk	\$7.22	\$6.90	-4%
Labor and machinery costs per cow	\$1,685	\$1,467	-13%
Hired labor costs per cwt. milk	\$2.97	\$2.78	-6%
Hired labor costs per worker equivalent	\$43,338	\$41,773	-4%
Operating cost of producing milk per cwt.	\$15.17	\$14.03	-8%
Purchased input cost of producing milk per cwt.	\$16.80	\$15.30	-9%
Total cost of producing milk per cwt.	\$19.03	\$16.99	-11%
Net milk price	\$16.08	\$16.08	0%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,664	\$9,345	-20%
Machinery and equipment per cow	\$1,784	\$1,239	-31%
Asset turnover ratio	0.42	0.53	26%
<i>Profitability</i>			
Net farm income without appreciation	\$111,929	\$959,121	757%
Net farm income without appreciation per cow	\$119	\$563	372%
Net farm income with appreciation	-\$11,654	\$473,300	4161%
Net farm income with appreciation per cow	-\$12	\$278	2338%
Labor & management income per operator/manager	-\$107,026	\$176,018	264%
Rate return on equity capital with appreciation	-2.7%	2.4%	187%
Rate return on equity capital without appreciation	-1.0%	7.0%	805%
Rate return on all capital with appreciation	-0.2%	3.1%	2098%
Rate return on all capital without appreciation	1.0%	6.2%	537%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$7,037,675	\$10,505,035	49%
Debt to asset ratio	0.36	0.35	-3%
Farm debt per cow	\$4,097	\$3,192	-22%
Debt coverage ratio ³	0.90	2.30	156%

² Average of 16 farms with highest rates of return to all capital (without appreciation).³ Farm participating both years

Table 4 Continued.

DAIRY FARM BUSINESS SUMMARY SELECTED FACTORS			
156 New York Dairy Farms, All Farms vs Top10% ⁴ , 2018			
SELECTED FACTORS	Average of All Farms	Average of Top 10%	Percent Difference
<i>Income Generation</i>			
% Butterfat ⁵	3.87%	3.87%	0%
% Protein ⁵	3.08%	3.08%	0%
Lbs. of Butterfat and Protein per Cow ⁵	1,797	1,813	1%
Component Value per Cwt. ⁵	\$15.79	\$15.67	-1%
Gross Milk Price	\$17.26	\$17.47	1%
<i>Balance Sheet Analysis</i>			
Working Capital as % of Operating Expenses	19%	22%	16%
Long Term Debt to Asset Ratio	0.33	0.37	12%
Intermediate/Current Debt to Asset Ratio	0.39	0.33	-15%
Debt to Asset Ratio, Total	0.36	0.35	-3%
<i>Debt Analysis</i>			
Accounts payable as percent of total debt	5%	5%	0%
Long-term debt as percent of total debt	44%	47%	7%
Current & intermediate debt as percent of total debt	56%	53%	-5%
Cost of term debt(weighted average)	4.9%	4.6%	-6%
<i>Net Worth Change</i>			
Retained earnings	-\$116,205	\$711,447	712%
Contributed capital	\$103,198	\$229,965	123%
Valuation equity	-\$211,474	-\$683,597	-223%
<i>Cash Flow</i>			
Net provide by operating activities, per cow	\$251	\$456	81%
Net provided by investing activities, per cow	-\$566	-\$721	-27%
Net provided by financing activates, per cow	\$345	\$240	-31%
Net provided by reserves, per cow	-\$31	\$26	184%
<i>Repayment Analysis</i> ⁶			
Planned debt payments per Cow	\$550	\$391	-29%
Planned debt payments per Cwt.	\$2.14	\$1.50	-30%
Percent of total receipts	11%	8%	-29%
Percent of milk receipts	12%	9%	-30%
Cash flow coverage ratio	0.82	1.55	89%
Debt coverage ratio	0.90	2.30	156%
<i>Crop Program Analysis</i>			
Crop input costs per acre	\$132	\$139	6%
Total tillable acres per cow	1.88	1.52	-19%
Total forages acres per cow	1.59	1.39	-13%
Harvested dry matter per cow	7.71	7.15	-7%
Percent tillable land owned	54%	53%	-2%
<i>Capital and Financial Efficiency</i>			
Farm capital per cow	\$11,664	\$9,345	-20%
Real estate per cow	\$5,482	\$4,140	-24%
Machinery and equipment per cow	\$1,784	\$1,239	-31%
Asset turnover	0.42	0.53	26%
Operating expense ratio	0.86	0.80	-7%
Interest expense ratio	0.04	0.03	-25%
Depreciation expense ratio	0.08	0.06	-25%

⁴ Average of 16 farms with highest rates of return to all capital (without appreciation).⁵ Farms reporting data⁶ Farm participating two years

Table 5.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT156 New York Dairy Farms, All Farms vs Top10%⁷, 2018

Item	Average of All Farms		Average of Top 10% Farms		% Difference
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	939		1,704		81%
Cwt. of milk sold		241,880		443,470	83%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,444	\$17.26	\$4,546	\$17.47	1%
Dairy cattle	\$317	\$1.23	\$387	\$1.49	21%
Dairy calves	\$24	\$0.09	\$28	\$0.11	17%
Other livestock	\$21	\$0.08	\$16	\$0.06	-28%
Crops	\$100	\$0.39	\$182	\$0.70	79%
Miscellaneous receipts	<u>\$172</u>	<u>\$0.67</u>	<u>\$125</u>	<u>\$0.48</u>	-28%
Total Operating Receipts	\$5,079	\$19.72	\$5,283	\$20.30	3%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$764	\$2.97	\$723	\$2.78	-6%
Dairy grain & concentrate	\$1,495	\$5.80	\$1,480	\$5.69	-2%
Dairy roughage	\$94	\$0.36	\$108	\$0.41	14%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.00	\$1	\$0.00	0%
Machine hire, rent & lease	\$122	\$0.47	\$124	\$0.48	1%
Machine repair & vehicle expense	\$219	\$0.85	\$187	\$0.72	-16%
Fuel, oil & grease	\$153	\$0.60	\$130	\$0.50	-16%
Replacement livestock	\$14	\$0.06	\$14	\$0.05	-5%
Breeding	\$54	\$0.21	\$40	\$0.15	-27%
Veterinary & medicine	\$150	\$0.58	\$145	\$0.56	-4%
Milk marketing	\$303	\$1.18	\$360	\$1.38	18%
Bedding	\$83	\$0.32	\$73	\$0.28	-13%
Milking supplies	\$83	\$0.32	\$69	\$0.26	-18%
Cattle lease	\$3	\$0.01	\$1	\$0.00	-66%
Custom boarding	\$75	\$0.29	\$139	\$0.53	83%
BST expense	\$0	\$0.00	\$0	\$0.00	NA
Livestock professional fees	\$15	\$0.06	\$11	\$0.04	-24%
Other livestock expense	\$21	\$0.08	\$12	\$0.05	-44%
Fertilizer & lime	\$100	\$0.39	\$90	\$0.35	-11%
Seeds & plants	\$110	\$0.43	\$71	\$0.27	-36%
Spray & other crop expense	\$54	\$0.21	\$46	\$0.18	-16%
Crop professional fees	\$7	\$0.03	\$0	\$0.00	-96%
Land, building & fence repair	\$61	\$0.24	\$57	\$0.22	-7%
Taxes	\$63	\$0.24	\$54	\$0.21	-14%
Real estate rent & lease	\$81	\$0.31	\$61	\$0.23	-26%
Insurance	\$44	\$0.17	\$33	\$0.13	-27%
Utilities	\$95	\$0.37	\$87	\$0.33	-10%
Interest paid	\$189	\$0.74	\$149	\$0.57	-22%
Other professional fees	\$26	\$0.10	\$25	\$0.10	-2%
Miscellaneous	<u>\$25</u>	<u>\$0.10</u>	<u>\$27</u>	<u>\$0.10</u>	7%
Total Operating Expenses	\$4,506	\$17.50	\$4,317	\$16.59	-5%
Expansion livestock	\$35	\$0.14	\$72	\$0.28	103%
Extraordinary expenses	\$3	\$0.01	\$0	\$0.00	-100%
Machinery depreciation	\$226	\$0.88	\$179	\$0.69	-22%
Real estate depreciation	<u>\$190</u>	<u>\$0.74</u>	<u>\$153</u>	<u>\$0.59</u>	-20%
Total Expenses	\$4,960	\$19.26	\$4,721	\$18.14	-6%
Net Farm Income w/o Appreciation	\$119	\$0.46	\$563	\$2.16	367%

⁷ Average of 16 farms with highest rates of return to all capital (without appreciation).

Table 6.

PROGRESS OF THE FARM BUSINESSSame 16 New York Dairy Farms, Top 10%, 2017 & 2018, DFBS⁸

SELECTED FACTORS	Average of 16 Farms, Top 10%		Percent Change
	2017	2018	
<i>Size of Business</i>			
Average number of cows	1,478	1,704	15%
Average number of heifers	1,253	1,358	8%
Milk sold, pounds	39,121,533	44,346,961	13%
Worker equivalent	29.9	32.3	8%
Total tillable acres	2,349	2,515	7%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,461	26,023	-2%
Hay DM per acre, tons	3.7	3.60	-3%
Corn silage per acre, tons	18	19.20	7%
<i>Labor Efficiency</i>			
Cows per worker	49.4	52.7	7%
Milk sold per worker, pounds	1,307,975	1,372,546	5%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.60	\$5.69	2%
Net milk income over purchased grain & conc. per cow	\$3,145	\$2,758	-12%
Dairy feed & crop expense per cwt. milk	\$6.95	\$6.90	-1%
Labor and machinery costs per cow	\$1,575	\$1,467	-7%
Hired labor costs per cwt. milk	\$2.86	\$2.78	-3%
Hired labor costs per worker equivalent	\$41,299	\$41,773	1%
Operating cost of producing milk per cwt.	\$14.73	\$14.03	-5%
Purchased input cost of producing milk per cwt.	\$16.10	\$15.30	-5%
Total cost of producing milk per cwt.	\$17.96	\$16.99	-5%
Net milk price	\$17.32	\$16.08	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$10,140	\$9,345	-8%
Machinery and equipment per cow	\$1,409	\$1,239	-12%
Asset turnover ratio	0.56	0.53	-5%
<i>Profitability</i>			
Net farm income without appreciation	\$934,129	\$959,121	3%
Net farm income without appreciation per cow	\$632	\$563	-11%
Net farm income with appreciation	\$1,137,692	\$473,300	-58%
Net farm income with appreciation per cow	\$770	\$278	-64%
Labor & management income per operator/manager	\$172,335	\$176,018	2%
Rate return on equity capital with appreciation	9.1%	2.4%	-74%
Rate return on equity capital without appreciation	7.1%	7.0%	-1%
Rate return on all capital with appreciation	7.4%	3.1%	-58%
Rate return on all capital without appreciation	6.0%	6.2%	3%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$10,291,207	\$10,505,035	2%
Debt to asset ratio	0.35	0.35	0%
Farm debt per cow	\$3,410	\$3,192	-6%
Debt coverage ratio ⁹	2.51	2.3	-8%

⁸ Top 10% of farms sorted by % return to all capital without appreciation⁹ Farm participating both years

Table 7.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHTSame 16 New York Dairy Farms, Top 10%, 2017 & 2018, DFBS¹⁰

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,478		1,704		
Cwt. of milk sold		391,215		443,470	
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,893	\$18.49	\$4,546	\$17.47	-6%
Dairy cattle	\$463	\$1.75	\$387	\$1.49	-15%
Dairy calves	\$49	\$0.19	\$28	\$0.11	-42%
Other livestock	\$9	\$0.03	\$16	\$0.06	100%
Crops	\$84	\$0.32	\$182	\$0.70	119%
Miscellaneous receipts	<u>\$92</u>	<u>\$0.35</u>	<u>\$125</u>	<u>\$0.48</u>	37%
Total Operating Receipts	\$5,590	\$21.13	\$5,283	\$20.30	-4%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$758	\$2.86	\$723	\$2.78	-3%
Dairy grain & concentrate	\$1,483	\$5.60	\$1,480	\$5.69	2%
Dairy roughage	\$95	\$0.36	\$108	\$0.41	14%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$3	\$0.01	\$1	\$0.00	-100%
Machine hire, rent & lease	\$126	\$0.48	\$124	\$0.48	0%
Machine repair & vehicle expense	\$231	\$0.87	\$187	\$0.72	-17%
Fuel, oil & grease	\$113	\$0.43	\$130	\$0.50	16%
Replacement livestock	\$3	\$0.01	\$14	\$0.05	400%
Breeding	\$48	\$0.18	\$40	\$0.15	-17%
Veterinary & medicine	\$167	\$0.63	\$145	\$0.56	-11%
Milk marketing	\$309	\$1.17	\$360	\$1.38	18%
Bedding	\$84	\$0.32	\$73	\$0.28	-13%
Milking supplies	\$68	\$0.26	\$69	\$0.26	0%
Cattle lease	\$3	\$0.01	\$1	\$0.00	-100%
Custom boarding	\$158	\$0.60	\$139	\$0.53	-12%
BST expense	\$19	\$0.07	\$0	\$0.00	-100%
Livestock professional fees	\$14	\$0.05	\$11	\$0.04	-20%
Other livestock expense	\$23	\$0.09	\$12	\$0.05	-44%
Fertilizer & lime	\$92	\$0.35	\$90	\$0.35	0%
Seeds & plants	\$110	\$0.41	\$71	\$0.27	-34%
Spray & other crop expense	\$57	\$0.22	\$46	\$0.18	-18%
Crop professional fees	\$2	\$0.01	\$0	\$0.00	-100%
Land, building & fence repair	\$59	\$0.22	\$57	\$0.22	0%
Taxes	\$58	\$0.22	\$54	\$0.21	-5%
Real estate rent & lease	\$58	\$0.22	\$61	\$0.23	5%
Insurance	\$33	\$0.13	\$33	\$0.13	0%
Utilities	\$84	\$0.32	\$87	\$0.33	3%
Interest paid	\$124	\$0.47	\$149	\$0.57	21%
Other professional fees	\$32	\$0.12	\$25	\$0.10	-17%
Miscellaneous	<u>\$27</u>	<u>\$0.10</u>	<u>\$27</u>	<u>\$0.10</u>	0%
Total Operating Expenses	\$4,442	\$16.79	\$4,317	\$16.59	-1%
Expansion livestock	\$152	\$0.57	\$72	\$0.28	-51%
Extraordinary expenses	\$12	\$0.05	\$0	\$0.00	-100%
Machinery depreciation	\$207	\$0.78	\$179	\$0.69	-12%
Real estate depreciation	<u>\$146</u>	<u>\$0.55</u>	<u>\$153</u>	<u>\$0.59</u>	7%
Total Expenses	\$4,959	\$18.74	\$4,721	\$18.15	-3%
Net Farm Income w/o Appreciation	\$632	\$2.39	\$563	\$2.16	-10%

¹⁰ Top 10% of farms sorted by % return to all capital without appreciation

Table 8.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS16 New York Dairy Farms, Top 10%, 2018¹¹

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ¹²	(12)	(12)	(12)	(11)	(11)	(14)	(14)
68.4	3,721	92,018,773	29,129	5.0	23.0	64.7	1,706,344
42.1	2,087	58,117,733	27,849	4.4	21.6	58.7	1,543,099
26.4	1,347	34,274,661	26,646	3.7	19.6	52.7	1,429,596
19.2	1,036	28,079,704	25,425	2.8	17.8	50.0	1,352,153
12.2	673	18,019,692	24,342	1.7	12.4	44.8	1,152,163

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,249	\$4.79	28	\$502	\$1,116	\$1,546	\$5.80	\$34,734
\$1,375	\$5.18	30	\$631	\$1,397	\$1,711	\$6.46	\$38,857
\$1,462	\$5.44	32	\$715	\$1,519	\$1,750	\$6.81	\$42,786
\$1,586	\$5.93	35	\$790	\$1,632	\$1,900	\$7.14	\$44,518
\$1,728	\$6.60	37	\$932	\$1,897	\$2,124	\$7.91	\$48,636

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$5,106	\$18.56	\$13.02	\$16.11	8.4	\$2,543,418	\$610,498	\$1,568,650
\$4,756	\$17.82	\$13.47	\$16.52	6.5	\$952,931	\$209,927	\$578,388
\$4,620	\$17.40	\$14.25	\$16.82	5.4	\$799,957	\$127,316	\$116,973
\$4,513	\$16.91	\$14.53	\$17.43	4.8	\$454,821	\$79,003	-\$102,060
\$4,142	\$16.32	\$15.77	\$18.35	4.2	\$273,140	\$35,390	-\$715,354

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$7,249	\$350	0.75	0.77	60.21	\$39	95	70
\$8,941	\$925	0.58	0.79	6.13	\$226	87	36
\$9,838	\$1,155	0.53	0.80	2.17	\$498	69	25
\$10,378	\$1,464	0.49	0.83	1.56	\$638	49	12
\$11,288	\$2,153	0.43	0.88	0.89	\$850	21	-2

¹¹ Top 10% of farms sorted by percent return to all capital without appreciation¹² Page number of the participant's DFBS where the factor is located.

SUMMARY AND ANALYSIS OF THE FARM BUSINESS

Business Characteristics

Planning optimal management strategies is a crucial component of operating a successful farm. Various combinations of farm resources, enterprises, business arrangements, and management techniques are used by the dairy producers in this region. The following table shows important farm business characteristics and the number of farms with each characteristic.

Table 9.

BUSINESS CHARACTERISTICS 156 New York Dairy Farms, 2018

Type of Farm	Number	Type of Barn	Number
Dairy	156	Stanchion/Tie-Stall	11
Dairy – cash crop	0	Freestall	136
		Combination	8
Type of Ownership	Number	Milking System	Number
Owner	156	Pipeline	14
Renter	0	Herringbone Conventional	37
		Herringbone Rapid Exit	14
Type of Business	Number	Parallel	65
Single proprietorship	24	Parabone	3
Partnership	14	Rotary	7
Limited Liability Corporation	101	Other	15
Subchapter S Corporation	14		
Subchapter C Corporation	2		
Business Record System	Number	Milking Frequency	Number
Account Book	5	2x/day	41
Accounting Service	15	3x/day	101
On-Farm Computer	131	Other	13
Other	2		
Breed	Percent	Production Records	Number
Holstein	93	Testing Service	118
Jersey	3	On-Farm System	28
Other	4	Other	1
		None	6

Accounting Procedures

Accrual accounting adjustments are made to cash receipts and expenses to accurately measure annual receipts, expenses, and farm profitability. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended in this year. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

The accrual accounting adjustments consider changes in accounts payable and receivable, prepaid expenses, and changes in inventory of not only such items as crops and livestock, but also the inventory of production items such as fertilizer, seed, and fuel. In this manner, the total cost of production and the total value of production are obtained to provide an accurate representation of profitability in that year.

Accrual adjustments are complemented by accounting procedures used to separate changes in inventory of capital assets into changes caused by price and those caused by quality or quantity changes. Separating price changes (appreciation) from physical changes in the farm inventory are important in determining farm profitability. Appreciation of farm assets is included in the return to farm capital, but excluded from the return to labor and management.

Income Statement - Expenses

The accrual income statement begins with an accounting of all farm business expenses. Farm business expenditures are grouped into the following nine major categories:

1. Hired labor includes gross wages plus the farm share of social security, workers' compensation insurance, employee health insurance and other employee benefits paid by the farm employer.
2. Feed expenses are divided into purchased dairy grain and concentrate, purchased dairy roughage and all feed purchased for nondairy livestock to allow for a more thorough analysis of dairy herd feeding costs. The costs of growing grain and roughage are not included in cash and accrual feed expenses.
3. Machinery costs represent all the operating costs of using machinery on the farm. Ownership costs are excluded here but are included in the analysis of machinery costs presented on page 27.
4. Livestock expenses include the cost of supplies and services directly associated with the care and maintenance of the dairy herd, such as breeding, veterinary, bedding, milking supplies, and custom boarding expenses plus milk marketing costs. The purchase of replacement cattle is considered a herd maintenance expense while expansion livestock is not.
5. Crop expenses include the costs of fertilizer, lime, seeds, spray, and other crop supplies.
6. Real estate expenses are the direct costs associated with owning and maintaining farm land, buildings, and storage structures.
7. Other includes insurance, the farm-share of utilities, interest paid on all farm indebtedness, and miscellaneous costs.
8. Expansion livestock is purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year. It is a non-operating cost included in total expenses.
9. Depreciation of machinery and buildings are non-operating costs included in total expenses. Depreciation charges are based on those reported for income tax purposes.

Cash and accrual farm expenses are summarized on the following page.

Cash paid is the actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in 2018.

Change in inventory: Increases in inventories of supplies and other purchased inputs are subtracted in computing accrual expenses because they represent purchased inputs not actually used during the year. Decreases in purchased inventories are added to expenses because they represent inputs purchased in a prior year and used this year.

Table 10.

CASH AND ACCRUAL FARM EXPENSES
156 New York Dairy Farms, 2018

Expense Item	Cash Paid	-	Change in Inventory or Prepaid Expense	+	Change in Accounts Payable	=	Accrual Expenses
<u>Hired Labor</u>	\$717,465		-\$362<<		\$209		\$718,036
<u>Feed</u>							
Dairy grain & concentrate	1,381,006		-11,815		11,017		1,403,837
Dairy roughage	81,777		-3,251		3,220		88,247
Nondairy	253		-45		0		298
Professional nutritional services	1,079		0<<		28		1,107
<u>Machinery</u>							
Machinery hire, rent/lease	113,951		-163<<		207		114,321
Mach. repair & farm vehicle exp.	202,793		657		3,226		205,362
Fuel, oil & grease	143,907		215		280		143,972
<u>Livestock</u>							
Replacement livestock	13,619		0<<		-103		13,516
Breeding	51,007		188		-79		50,740
Vet & medicine	141,735		-21		-593		141,163
Milk marketing	285,602		-10.20<<		-745		284,867
Bedding	77,399		-721		-112		78,007
Milk supplies	78,721		291		-111		78,319
Cattle lease/rent	2,449		0<<		-10		2,438
Custom boarding	70,515		0<<		134		70,649
bST expense	35		-46		0		81
Livestock professional fees	13,853		-259<<		-39		14,073
Other livestock expense	19,851		-70		31		19,952
<u>Crops</u>							
Fertilizer & lime	81,654		-5,892		6,178		93,724
Seeds & plants	94,901		-5,185		3,386		103,471
Spray, other crop exp.	46,010		-1,457		3,663		51,130
Crop professional fees	5,908		-170<<		660		6,738
<u>Real Estate</u>							
Land/bldg./fence repair	56,439		-638		183		57,259
Taxes	58,398		-364<<		173		58,935
Rent & lease	74,663		-243<<		1,170		76,077
<u>Other</u>							
Insurance	41,794		231<<		39		41,601
Utilities (farm share)	89,267		-255<<		-35		89,488
Interest paid	178,960		-207<<		-1,280		177,887
Other professional fees	23,704		-112<<		206		24,022
Miscellaneous	22,875		-185		18		23,078
Total Operating Expenses	\$4,171,589		-\$29,887		\$30,920		\$4,232,396
Expansion livestock	32,905		0<<		0		32,905
Extraordinary expense	2,405		0<<		185		2,590
Machinery depreciation							211,888
Building depreciation							178,504
Total Accrual Expenses							\$4,658,283

Change in prepaid expenses (noted above by <<) is a net change in non-inventory expenses that have been paid in advance of their use. If 2018 funds used to prepay 2019 leases exceed the amount of 2018 leases prepaid in 2017, the amount of this excess is subtracted to exclude it from 2018 accrual lease expenses. The excess prepaid lease is charged against the future year's business operation. A decrease in prepaid lease is added to accrual expenses because it represents use of resources during this year that were paid for in past years.

Change in accounts payable: An increase in accounts payable from beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in 2018 but not paid for. A decrease is subtracted because the resource was used before 2018.

Accrual expenses are the costs of inputs actually used in this year's production. They are the total of cash paid, as well as changes in inventory, prepaid expenses, and accounts payable.

Income Statement – Receipts

Cash and accrual farm receipts are presented in the following table. Accrual receipts are generally greater than cash receipts due to an increase in account receivables, grown feed inventories, and herd growth. However, if these changes for inventories and account receivables are negative for the year, the accrual revenue can be less than the cash.

Table 11.

CASH AND ACCRUAL FARM RECEIPTS 156 New York Dairy Farms, 2018

Receipt Item	Cash Receipts	+	Change in Inventory	+	Change in Accounts Receivable	=	Accrual Receipts
Milk sales	\$4,182,698				-\$8,485		\$4,174,214
Dairy cattle	203,687		94,112		-465		297,333
Dairy calves	22,285		111		123		22,519
Other livestock	21,856		-2,291		548		20,113
Crops	46,544		45,933		1,801		94,277
Government receipts	39,631		0 ¹³		-573		39,059
Custom machine work	16,653				-602		16,051
Gas tax refund	515				78		593
Other	<u>104,471</u>				<u>2,026</u>		<u>106,497</u>
Less nonfarm noncash cap.			<u>442</u> ¹⁴				<u>442</u>
Total Receipts	\$4,638,340		\$137,422		-\$5,549		\$4,770,213

¹³ Change in advanced government receipts.

¹⁴ Gifts or inheritances of cattle or crops included in inventory

Cash receipts include the gross value of milk checks received during the year plus all other payments received from the sale of farm products, services, and government programs. Nonfarm income is not included in calculating farm profitability.

Changes in inventory of assets produced by the business are calculated by subtracting beginning of year values from end of year values, excluding appreciation. Increases in livestock inventory caused by herd growth and/or quality are added, and decreases caused by herd reduction and/or quality are subtracted. Changes in inventories of crops grown are also included. An annual increase in advanced government receipts is subtracted from cash income because it represents income received in 2018 for the 2019 crop year in excess of funds earned for 2018. Likewise, a decrease is added to cash government receipts because it represents funds earned for 2018 but received in 2017.

Changes in accounts receivable are calculated by subtracting beginning year balances from end year balances. The January milk check for this December's marketing's compared with the previous January's check is included as a change in accounts receivable.

Accrual receipts represent the value of all farm commodities produced and services actually generated by the farm business during the year.

Nonfarm noncash capital transfers are gifts and inheritances of cattle and crops received by the farm owner/operator, and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from outside the farm business.

Profitability Analysis

Farm operators¹⁵ contribute labor, management, and equity capital to their businesses and the combination of these resources, and the other resources used in the business, determines profitability. Farm profitability can be measured as the return to all family resources or as the return to one or more individual resources, such as labor and management.

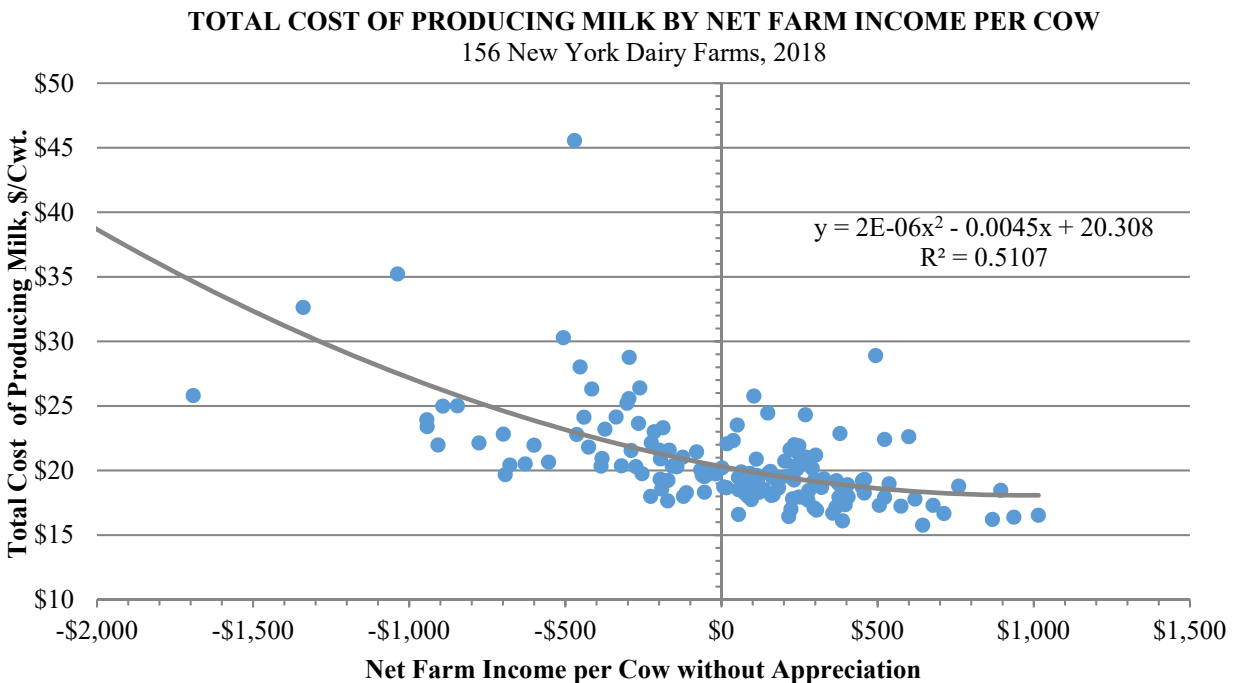
Net farm income is the return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business operation. Cash flow is evaluated later in this report.

Net farm income is computed both with and without appreciation. Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

Table 12.

NET FARM INCOME		
156 New York Dairy Farms, 2018		
Item	Average 156 Farms	
	Total	Per Cow
Total accrual receipts	\$ 4,770,213	
Appreciation: Livestock	-300,320	
Machinery	19,661	
Real Estate	153,465	
Other Stock/Certificates	3,610	
Total Including Appreciation	\$ 4,646,629	
Total accrual expenses	<u>4,658,283</u>	
Net Farm Income (with appreciation)	\$ -11,654	\$-12
Net Farm Income (without appreciation)	\$ 111,929	\$119

Chart 1.



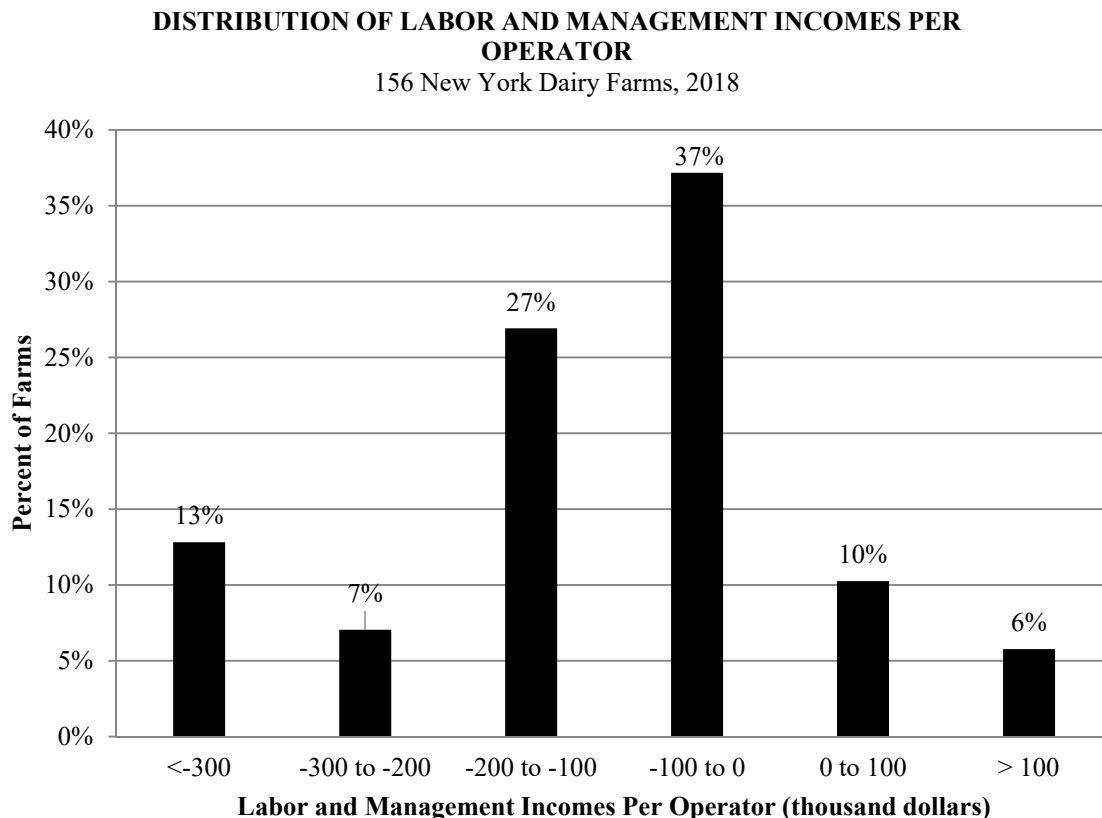
¹⁵ Operators are the individuals who are integrally involved in the operation and management of the farm business. They are not limited to those who own the farm or are formal members of the partnership or corporation.

Labor and management income is the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for unpaid family labor and the opportunity cost of using equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

Table 13.

LABOR AND MANAGEMENT INCOME 156 New York Dairy Farms, 2018	
Item	Average 156 Farms
Net farm income without appreciation	\$ 111,929
Family labor unpaid @ \$2,950 per month	- 3,640
Interest on \$7,151,034 average equity capital @ 5% real rate	- 357,661
Labor & Management Income per Farm (2.33 operators/farm)	\$ -249,372
Labor & Management Income per Operator/Manager	\$ -107,026

Labor and management income per operator averaged -\$107,026 on these 156 Farms in 2018. Returns to labor and management were less than -\$100,000 on 47 percent of the farms, with 37 percent of the farms showing a return to labor & management between 0 and -\$100,000. Labor and management income per operator was greater than \$0 for 16 percent of the farms, with 6% of the farms having a return greater than \$100,000.

Chart 2

Return on equity capital measures the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner-operator's labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost of operators' labor and management estimated by the cooperators. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital. Return on all capital is calculated by adding interest paid to the return on equity capital and then dividing by average farm assets to calculate the rate of return on total capital.

Table 14.

RETURN ON EQUITY CAPITAL AND RETURN ON TOTAL CAPITAL

156 New York Dairy Farms, 2018

Item	Average 156 Farms
Net farm income with appreciation	\$ -11,654
Family labor unpaid @ \$2,950 per month	- 3,640
Value of operators' labor & management	- 179,796
Return on equity capital with appreciation	\$ -195,090
Interest paid	+ 177,887
Return on total capital with appreciation	\$ -17,203
Return on equity capital without appreciation	\$ -71,507
Return on total capital without appreciation	\$ 106,380
Rate of return on average equity capital:	
with appreciation	-2.7%
without appreciation	-1.0%
Rate of return on average total capital:	
with appreciation	-0.2%
without appreciation	1.0%
Net farm income from operations ratio	0.02

Farm and Family Financial Status

The first step in evaluating the financial position of the farm is to construct a balance sheet which identifies all the assets and liabilities of the business. The second step is to evaluate the relationship between assets, liabilities, and net worth and changes that occurred during the year.

Financial lease obligations are included in the balance sheet. The present value of all future payments is listed as a liability since the farmer is committed to make the payments by signing the lease. The present value is also listed as an asset, representing the future value the item has to the business. For 2018, leases were discounted by 8.0 percent.

Advanced government receipts are included as current liabilities. Government payments received in 2018 that are for participation in the 2019 program are the end year balance and payments received in 2017 for participation in the 2018 program are the beginning year balance.

Current Portion or principal due in the next year for intermediate and long term debt is included as a current liability.

Table 15.

2018 FARM BUSINESS & NONFARM MARKET VALUE BALANCE SHEET

156 New York Dairy Farms, 2018

Farm Assets			Farm Liabilities & Net Worth		
	Jan. 1	Dec. 31		Jan. 1	Dec. 31
<u>Current</u>			<u>Current</u>		
Farm cash, checking & savings	\$ 93,506	\$ 122,770	Accounts payable	\$ 147,953	\$182,076
Accounts receivable	401,455	395,889	Operating debt	250,288	233,846
Prepaid expenses	8,574	6,659	Short Term	6,721	4,038
Feed & supplies	1,153,933	1,171,893	Advanced govt. receipts	0	0
			Current Portion:		
			Intermediate	259,271	263,568
			Long Term	115,864	115,951
Total Current	\$ 1,657,468	\$ 1,697,212	Total Current	\$ 780,098	\$ 799,479
<u>Intermediate</u>			<u>Intermediate</u>		
Dairy cows:			Structured debt		
owned	\$ 1,309,453	\$ 1,226,004	1-10 years	\$1,302,316	\$1,413,916
leased	275	4	Financial lease		
Heifers	757,476	636,209	(cattle/machinery)	2,372	3,222
Bulls/other livestock	16,458	12,786	Farm Credit stock	1,144	1,143
Mach./equipment owned	1,681,376	1,665,926	Total Intermediate	\$1,302,316	\$1,418,281
Mach./equipment leased	2,097	2,773			
Farm Credit stock	1,144	1,143			
Other stock/certificate	448,187	498,105			
Total Intermediate	\$ 4,216,467	\$ 4,043,395			
<u>Long Term</u>			<u>Long Term</u>		
Land/buildings:			Structured debt		
owned	\$ 5,066,001	\$ 5,229,391	>10 years	\$ 1,589,613	\$1,714,563
leased	1,362	247	Financial lease		
Total Long Term	\$ 5,067,363	\$ 5,229,638	(structures)	1,362	247
			Total Long Term	\$1,590,975	\$1,714,810
Total Farm Assets	\$ 10,941,297	\$10,970,245	Total Farm Liabilities	\$3,676,904	\$3,932,570
			FARM NET WORTH	\$7,264,393	\$7,037,675
Nonfarm Assets, Liabilities & Net Worth (Average of 40 farms reporting)					
Assets	Jan. 1	Dec. 31	Liabilities & Net Worth	Jan. 1	Dec. 31
Personal cash, checking & savings	\$ 8,722	\$ 9,527	Nonfarm Liabilities	\$1,084	\$871
Cash value life insurance	51,841	50,418			
Nonfarm real estate	146,000	146,000			
Auto (personal share)	6,963	6,363			
Stocks & bonds	204,835	186,144			
Household furnishings	3,140	3,190			
All other nonfarm assets	209,673	211,302			
Total Nonfarm Assets	\$631,173	\$612,943	NONFARM NET WORTH	\$630,089	\$612,072
Farm & Nonfarm Assets, Liabilities, and Net Worth ¹⁶					
				Jan. 1	Dec. 31
Total Assets				\$11,572,470	\$11,583,188
Total Liabilities				3,677,988	3,933,441
TOTAL FARM & NONFARM NET WORTH				\$ 7,894,482	\$ 7,649,747

¹⁶ Assumes that average nonfarm assets and liabilities for the non-reporting farms were the same as for those reporting.

Balance sheet analysis involves examination of relative asset and debt levels for the business. Percent equity is calculated by dividing end of year net worth by end of year assets. The debt to asset ratio is compiled by dividing liabilities by assets. The leverage ratio is the dollars of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth. Low debt to asset ratios reflect business solvency and the potential capacity to borrow. Debt levels per productive unit represent old standards that are still useful if used with measures of cash flow and repayment ability.

Table 16.

BALANCE SHEET ANALYSIS		
156 New York Dairy Farms, 2018		
Item	Average 156 Farms	
<u>Financial Ratios - Farm:</u>		
Percent equity		64%
Debt/asset ratio: total		0.36
long-term		0.33
intermediate/current		0.39
Leverage Ratio		0.56
Current Ratio		2.12
Working Capital: \$897,733	as % of Total Expenses:	19%
<u>Farm Debt Analysis:</u>		
Accounts payable as % of total debt		5%
Long-term liabilities as a % of total debt		44%
Current & intermediate liabilities as a % of total debt		56%
Cost of term debt (weighted average)		4.9%
	<u>Average 156 Farms</u>	
	Per Cow	Per Tillable
<u>Farm Debt Levels:</u>	<u>Per Cow</u>	<u>Acre Owned</u>
Total farm debt	\$4,097	\$4,239
Long-term debt	1,786	1,848
Long-term & intermediate	3,264	3,377
Intermediate & current debt	2,310	2,391

Farm inventory balance is an accounting of the value of assets used on the balance sheet and the changes that occur from the beginning to end of year. Changes in the livestock inventory are included in the dairy analysis. Net investment indicates whether the capital stock is being expanded (positive) or depleted (negative).

Table 17.

FARM INVENTORY BALANCE			
156 New York Dairy Farms, 2018			
Item	Average of 156 Farms		
	<u>Real Estate</u>	<u>Machinery & Equipment</u>	
Value beginning of year	\$ 5,066,001	\$ 1,681,376	
Purchases	\$ 258,548 ¹⁷	\$ 187,258	
Gift/inheritance	+ 731	+	
Lost capital	- 87,891		
Sales	- 9,958	-	
Depreciation	- 178,504	-	
Net investment	= 9,925	= -35,111	
Appreciation	+ 153,465	+ 19,661	
Value end of year	\$ 5,229,391	\$ 1,665,926	

¹⁷ \$89,379 land and \$196,168 buildings and/or depreciable improvements.

Statement of Owner Equity

The Statement of Owner Equity has two purposes. It allows (1) verification that the accrual income statement and market value balance sheet are interrelated and consistent (in accountant's terms, they reconcile) and (2) identification of the causes of change in equity that occurred on the farm during the year. The Statement of Owner Equity allows you to determine to what degree the change in equity was caused by (1) earnings from the business, and nonfarm income, in excess of withdrawals being retained in the business (called retained earnings), (2) outside capital being invested in the business or farm capital being removed from the business (called contributed/withdrawn capital) and (3) increases or decreases in the value (price) of assets owned by the business (called change in valuation equity).

Retained earnings is an excellent indicator of farm generated financial progress.

Table 18.

STATEMENT OF OWNER EQUITY (RECONCILIATION) 156 New York Dairy Farms, 2018

Item	Average 156 Farms	
Beginning of year farm net worth		\$ 7,264,393
Net farm income without appreciation	\$ 111,801	
+ Nonfarm cash income	+ 7,456	
- Personal withdrawals & family expenditures excluding nonfarm borrowings	- \$ 235,462	
Retained Earnings		-\$ 116,205
Nonfarm noncash transfers to farm	\$ 1,173	
+ Cash used in business from nonfarm capital	+ 102,025	
- Note/mortgage from farm real estate sold (nonfarm)	- 0	
Contributed/Withdrawn Capital	=	+\$ 103,198
Appreciation	-\$ 123,583	
- Lost capital	- 87,891	
Change in Valuation Equity		-\$ 211,474
Imbalance/Error		- 2,237
End of year farm net worth ¹⁸		= \$ 7,037,675
Change in net worth with appreciation		-\$ 226,718
<u>Change in Net Worth</u>		
Without appreciation		-\$ 103,134
With appreciation		-\$ 226,718

¹⁸May not add due to rounding.

Cash Flow Statement

Completing an annual cash flow statement is an important step in understanding the sources and uses of funds for the business. Understanding last year's cash flow is the first step toward planning and managing cash flow for the current and future years.

The annual cash flow statement is structured to show net cash provided by operating activities, investing activities, financing activities, and from reserves. All cash inflows and outflows, including beginning and end balances, are included. Therefore, the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

Table 19.

ANNUAL CASH FLOW STATEMENT			
156 New York Dairy Farms, 2018			
Item		Average 156 Farms	
<u>Cash Flow from Operating Activities</u>			
Cash farm receipts	\$ 4,638,340		
- Cash farm expenses	4,171,589		
- Extraordinary expense	2,405		
= Net cash farm income		\$ 464,346	
Personal withdrawals/family expenses including nonfarm debt payments	\$ 235,648		
- Nonfarm income	7,456		
- Net cash withdrawals from the farm		<u>\$ 228,192</u>	
= Net Provided by Operating Activities			\$ 236,154
<u>Cash Flow From Investing Activities</u>			
Sale of Assets: Machinery	\$ 10,480		
+ real estate	9,958		
+ other stock & certificates	7,199		
= Total asset sales		\$ 27,637	
Capital purchases: expansion livestock	\$ 32,905		
+ machinery	187,258		
+ real estate	285,548		
+ other stock & certificates	53,506		
- Total invested in farm assets		<u>\$ 559,216</u>	
= Net Provided by Investment Activities			\$ -531,579
<u>Cash Flow From Financing Activities</u>			
Money borrowed (intermediate & long term)	\$ 623,574		
+ Money borrowed (short-term)	2,328		
+ Increase in operating debt	0.00		
+ Cash from nonfarm capital used in business	102,025		
+ Money borrowed - nonfarm	187		
= Cash inflow from financing		\$ 728,113	
Principal payments (intermediate & long-term)	\$ 382,679		
+ Principal payments (short-term)	5,010		
+ Decrease in operating debt	16,442		
- Cash outflow for financing		<u>\$ 404,131</u>	
= Net Provided by Financing Activities			\$ 323,983
<u>Cash Flow From Business</u>			
Beginning farm cash, checking & savings		\$ 93,506	
- Ending farm cash, checking & savings		<u>122,770</u>	
= Net Provided from Reserves			<u>\$ -29,264</u>
Imbalance (error)			-\$ 706

Repayment Analysis

A valuable use of cash flow analysis is to compare the debt payments planned for the last year with the amount actually paid. The measures listed below provide a number of different perspectives on the repayment performance of the business. However, the critical question for many farmers and lenders is whether planned payments can be made in 2019. The cash flow projection worksheet on the next page can be used to estimate repayment ability, which can then be compared to the planned 2019 debt payments shown below.

Table 20.

FARM DEBT PAYMENTS PLANNED New York Dairy Farms, 2017 & 2018

Debt Payments	Same 148 Dairy Farms		
	2018 Payments		Planned 2019
	Planned	Made	
Long-term	\$ 186,625	\$ 215,876	\$ 210,678
Intermediate-term	316,392	352,988	352,606
Short-term	6,046	4,706	2,385
Operating (net reduction)	16,567	70,323	13,872
Accounts payable (net reduction)	<u>2,754</u>	<u>17,620</u>	<u>2,703</u>
Total	\$ 528,383	\$ 661,513	\$ 582,244
Per cow	\$ 550	\$ 689	
Per cwt. 2018 milk	\$ 2.14	\$ 2.67	
Percent of total 2018 receipts	11.2%	13.6%	
Percent of 2018 milk receipts	12.4%	15.5%	

The cash flow coverage ratio and debt coverage ratio measure the ability of the farm business to meet its planned debt payments schedule. The ratios show the percentage of payments planned for 2018 (as of December 31, 2017) that could have been made with the amount available for debt service in 2018. Farmers who did not participate in DFBS in 2017 have their 2018 cash flow coverage ratio based on planned debt payments for 2019.

Table 21.

COVERAGE RATIOS Same 148 New York Dairy Farms, 2017 & 2018

Item	Average	Item	Average
<u>Cash Flow Coverage Ratio</u>		<u>Debt Coverage Ratio</u>	
Cash farm receipts	\$ 4,739,151	Net farm income (without appreciation)	\$ 126,557
- Cash farm expenses	4,254,939	+ Depreciation	400,907
+ Interest paid (cash)	180,496	+ Interest paid (accrual)	179,365
- Net personal withdrawals from farm ¹⁹	<u>232,733</u>	- Net personal withdrawals from farm ¹⁹	<u>232,733</u>
(A) = Amount Available for Debt Service	\$ 431,975	(A') = Repayment Capacity	\$ 474,096
(B) = Debt Payments Planned for 2018 (as of December 31, 2017)	\$ 528,383	(B) = Debt Payments Planned for 2018 (as of December 31, 2017)	\$ 528,383
(A/B) = Cash Flow Coverage Ratio for 2018	0.82	(A'/B) = Debt Coverage Ratio for 2018	0.90

¹⁹ Personal withdrawals and family expenditures less nonfarm income and nonfarm money borrowed. If family withdrawals are excluded, or inaccurately included, the cash flow coverage ratio will be incorrect.

Table 22.

ANNUAL CASH FLOW WORKSHEET 56 New York Dairy Farms, 2018

Average

Item	Average 56 Farms		Total
	Per Cow	Per Cwt.	
Number cows and cwt. Milk	939	241,880	
<u>Accrual Operating Receipts</u>			
Milk	\$4,444	\$17.26	\$ 4,174,214
Dairy cattle	317	1.23	297,333
Dairy calves	24	0.09	22,519
Other livestock	21	0.08	20,113
Crops	100	0.39	94,277
Misc. receipts	172	0.67	161,756
Total Operating Receipts	\$5,079	\$19.72	\$ 4,770,213
<u>Accrual Operating Expenses</u>			
Hired labor	\$ 764	\$ 2.97	\$ 718,036
Dairy grain & concentrate	1,495	5.80	1,403,837
Dairy roughage	94	0.36	88,247
Nondairy feed	0	0	298
Professional nutritional services	1	0	1,107
Machinery hire/rent/lease	122	0.47	114,321
Machinery repair & farm vehicle expense	219	0.85	205,362
Fuel, oil & grease	153	0.60	143,972
Replacement livestock	14	0.06	13,516
Breeding	54	0.21	50,740
Veterinary & medicine	150	0.58	141,163
Milk marketing	303	1.18	284,867
Bedding	83	0.32	78,007
Milking supplies	83	0.32	78,319
Cattle lease	3	0.01	2,438
Custom boarding	75	0.29	70,649
bST expense	0	0.00	81
Livestock professional fees	15	0.06	14,073
Other livestock expense	21	0.08	19,952
Fertilizer & lime	100	0.39	93,724
Seeds & plants	110	0.43	103,471
Spray/other crop expenses	54	0.21	51,130
Crop professional fees	7	0.03	6,738
Land, building, fence repair	61	0.24	57,259
Taxes	63	0.24	58,935
Real estate rent/lease	81	0.31	76,077
Insurance	44	0.17	41,601
Utilities	95	0.37	89,488
Other professional fees	26	0.10	24,022
Miscellaneous	25	0.10	23,078
Total Less Interest Paid	\$4,317	\$16.76	\$ 4,054,509
<u>Net Accrual Operating Income</u>			
(without interest paid)	\$ 762	\$ 2.96	\$ 715,703
- Change in livestock/crop inventory ²⁰	146	0.57	137,422
- Change in accounts receivable	-6	-0.02	-5,549
- Change in feed/supply inventory ²¹	-32	-0.12	-29,887
+ Change in accounts payable ²²	34	0.13	32,200
NET CASH FLOW	\$ 688	\$ 2.67	\$ 645,918
- Net personal withdrawals from farm (see footnote on page 24)	240	0.93	225,776
Available for Farm Debt Payments & Investments	\$ 447	\$ 1.74	\$ 420,142
- Farm debt payments	691	2.68	648,943
Available for Farm Investment	\$ -244	\$ -0.95	\$ -228,801
- Capital purchases: cattle, machinery & improvements	595	2.31	559,216
Additional Capital Needed	\$ -839	\$ -3.26	\$ -788,017

²⁰Includes change in advance gov. receipts. ²¹Includes change in prepaid expenses. ²²Excludes change in interest account payable.

Cropping Analysis

The cropping program is an important part of the dairy farm business and often represents opportunities for improved productivity and profitability. A complete evaluation of what the available land resources are, how they are being used, how well crops are producing, and what it costs to produce them is important to evaluating alternative cropping and feed purchasing alternatives.

Table 23.

LAND RESOURCES AND CROP PRODUCTION

156 New York Dairy Farms, 2018

Item	Average 156 Farms		
<u>Land</u>	<u>Owned</u>	<u>Rented</u>	<u>Total</u>
Tillable	928	792	1,719
Nontillable	28	14	42
Other nontillable	<u>192</u>	<u>2</u>	<u>195</u>
Total	1,147	808	1,955
<u>Crop Yields</u>	<u>Farms</u>	<u>Acres²³</u>	<u>Prod/Acre</u>
Hay crop	151	775	3.16 tn DM
Corn silage	148	686	18.96 tn
Other forage	29	258	4.09 tn DM
Total forage	151	1,497	4.84 tn DM
Corn grain	94	335	145 bu
Oats	7	32	54 bu
Wheat	23	168	66 bu
Other crops	48	137	
Tillable pasture	6	303	
Idle tillable	37	84	
Total Tillable Acres	156	1,719	

²³This column represents the average acreage for the farms producing that crop. Average acreages including those farms not producing were corn grain 202, oats 1, wheat 25, tillable pasture 12, and idle 20.

Average crop acres and yields compiled for the region are for the farms reporting each crop. Yields of forage crops have been converted to tons of dry matter using dry matter coefficients reported by the farmers. Grain production has been converted to bushels of dry grain equivalent based on dry matter information provided.

The following crop/dairy ratios indicate the relationship between forage production, forage production resources, and the dairy herd.

Table 24

CROP/DAIRY RATIOS

151 New York Dairy Farms, 2018 ²⁴

Item	Average 153 Farms
Total tillable acres per cow	1.88
Total forage acres per cow	1.59
Harvested forage dry matter, tons per cow	7.71

²⁴ Excludes farms that do not harvest forages.

A number of cooperators have allocated crop expenses among the hay crop, corn, and other crops produced. Fertilizer and lime, seeds and plants, and spray and other crop expenses have been computed per acre and per production unit for hay and corn. Additional expense items such as fuels, labor, and machinery repairs are not included. Rotational grazing was used on seven farms.

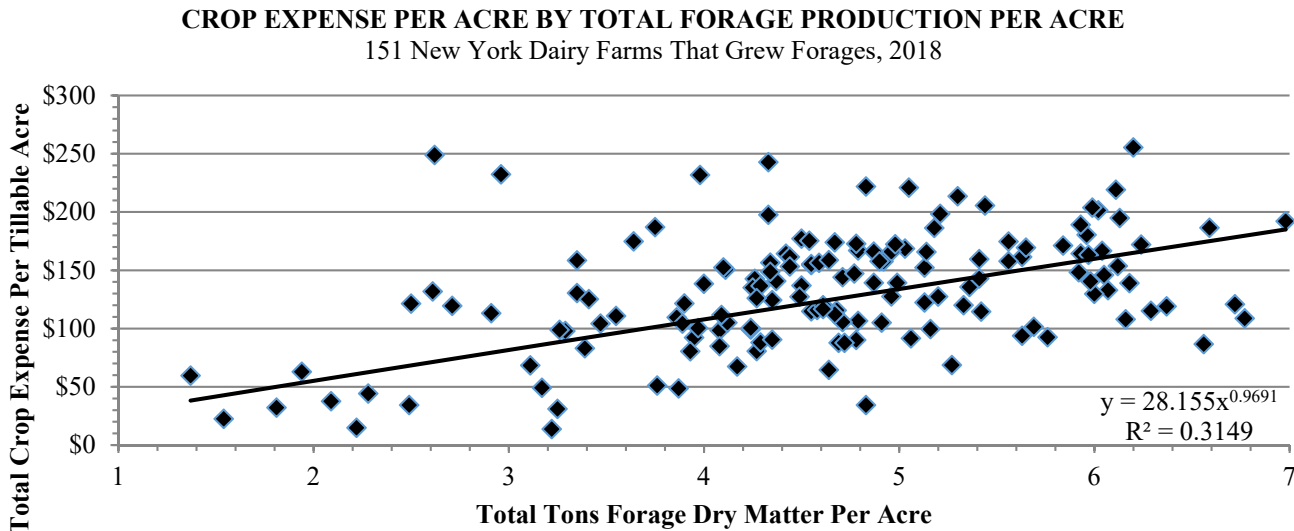
Table 25.

CROP RELATED ACCRUAL EXPENSES
New York Dairy Farms Reporting, 2018

Item	Total Per Till. Acre	All Corn Per Acre	Corn Silage Per Ton DM	Corn Grain Per Dry Sh. Bu.	Hay Crop	
					Per Acre	Per Ton DM
No. of farms reporting	151 ²⁵	6			6	
Ave. number of acres	1,767	957			872	
Fertilizer/lime	\$ 49.73	\$ 11.13	\$ 8.48	\$ 0.28	\$ 33.60	\$ 10.63
Seed/plants	54.31	10.24	14.40	0.41	31.17	9.86
Spray/other crop exp.	<u>27.62</u>	<u>6.93</u>	<u>5.04</u>	<u>0.14</u>	<u>16.01</u>	<u>5.07</u>
TOTAL	\$ 131.66	\$ 28.30	\$ 27.92	\$ 0.83	\$ 80.78	\$ 25.56

²⁵ Excludes farms that do not harvest forages.

Chart 3.



Most machinery costs are associated with crop production and should be analyzed with the crop enterprise. Total machinery expenses include the major fixed costs (interest and depreciation), as well as the accrual operating costs. Although machinery costs have not been allocated to individual crops, they are shown below per total tillable acre.

Table 26.

ACCRUAL MACHINERY EXPENSES ²⁶
151 New York Dairy Farms, 2018

Machinery Expense Item	Average 151 Farms	
	Total Expenses	Per Tillable Acre
Fuel, oil & grease	\$145,795	\$ 82.51
Machinery repairs & farm vehicle exp.	208,100	117.77
Machine hire, rent & lease	115,858	65.57
Interest (5%)	85,517	48.40
Depreciation	<u>215,311</u>	<u>121.85</u>
Total	\$770,581	\$436.10

²⁶ Excludes farms that do not harvest forages.

The trend lines on charts on the previous and following pages were completed using regression techniques. The predictive formulas and R^2 are presented for each relationship. An R^2 of 1.00 indicates a perfect relationship between the data and the trend line. An R^2 of .30 for example, is interpreted as the trend line explaining 30% of the variability in the relationship. The higher the R^2 , the better the trend line fits the data. With a low R^2 , other factors, not measured, are important in explaining the relationship.

The charts below show the relationship between the stocking rate (forage and grazing acres per cow) and labor and management income per operator per cow and real estate investment per cow. Stocking rate is total tillable acres plus non-tillable pasture acres less corn grain acres, all divided by the average number of cows.

Chart 4.

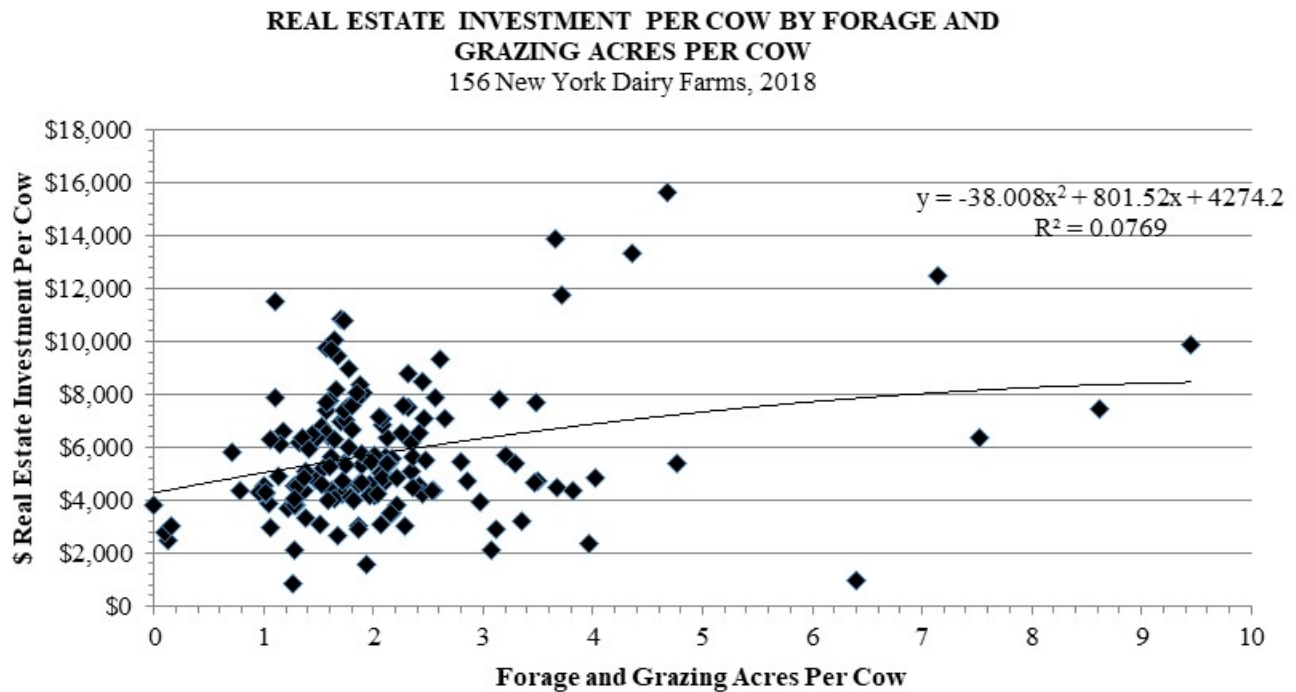
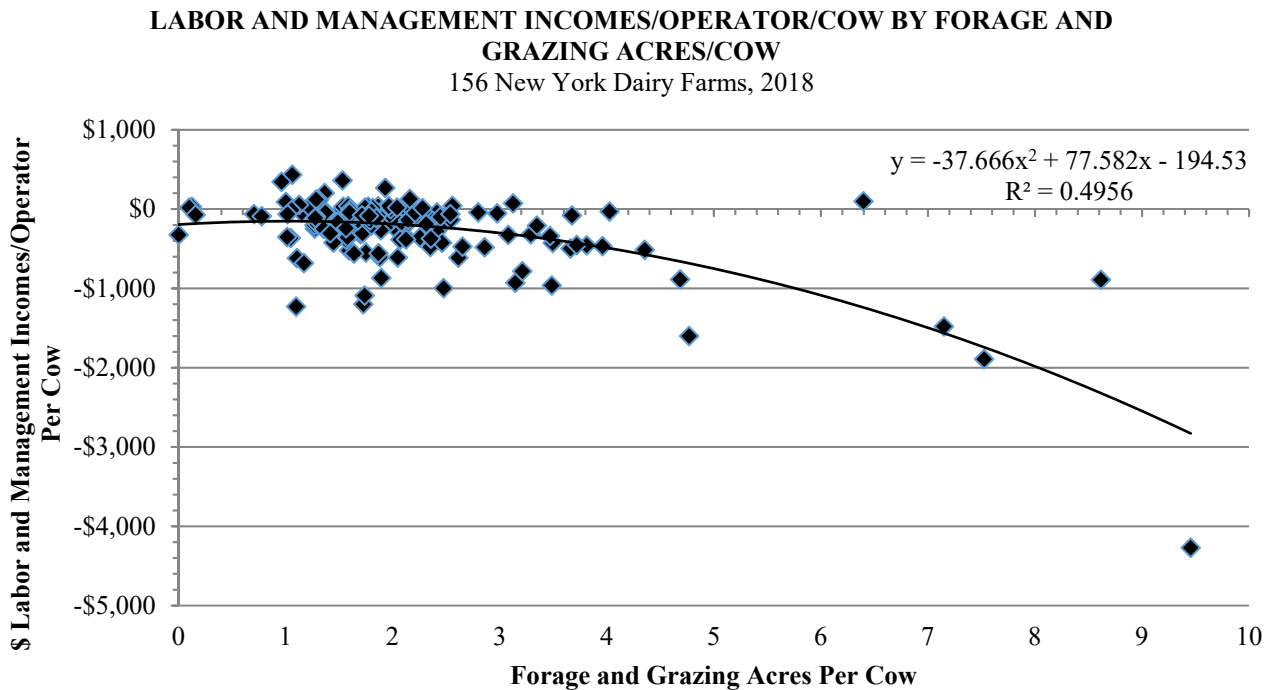


Chart 5.



Dairy Analysis

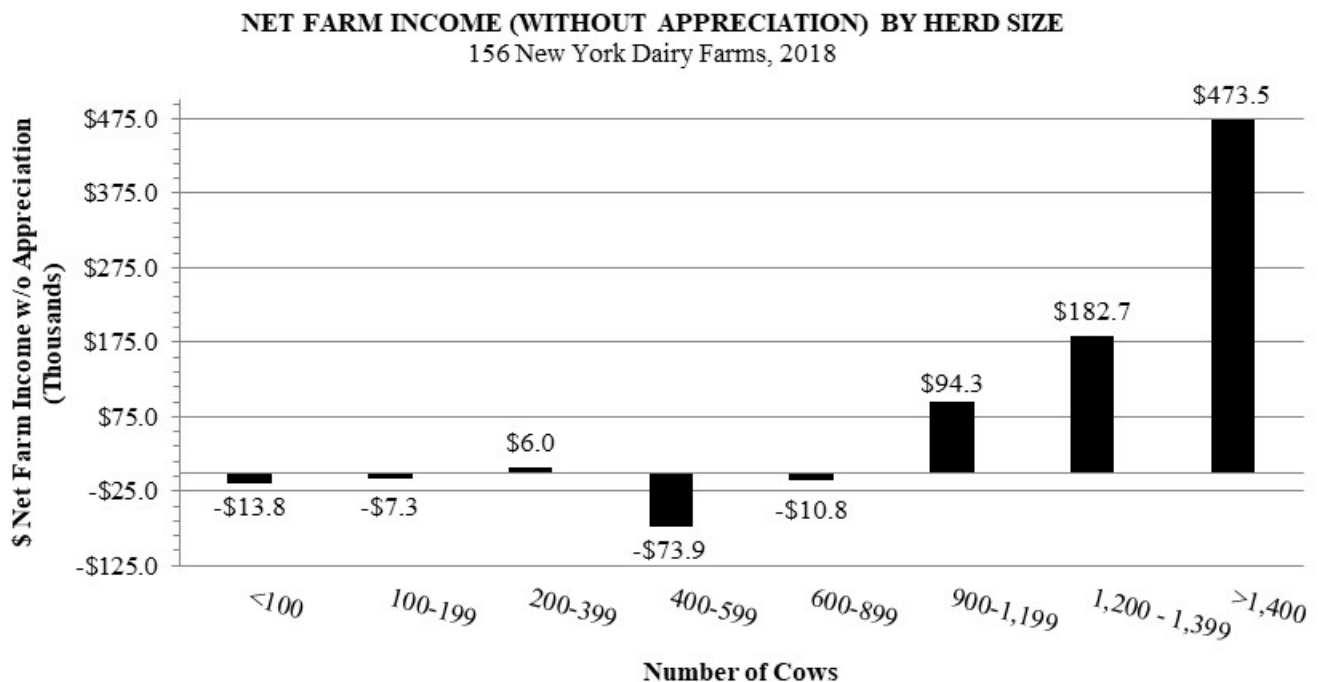
Analysis of the dairy enterprise can reveal a great deal about the strengths and weaknesses of the dairy farm business. Information on the following pages should be used in conjunction with Dairy Herd Improvement (DHI) and other dairy production information. Changes in dairy herd size and market values that occur during the year are identified in the table below. The change in inventory value without appreciation is attributed to physical changes in herd size and quality. Any change in inventory is included as an accrual farm receipt when calculating all of the profitability measures for the business.

Table 27.

DAIRY HERD INVENTORY 56 New York Dairy Farms, 2018								
Dairy Cows							Heifers	
Item			Bred		Open		Calves	
	No.	Value	No.	Value	No.	Value	No.	Value
<u>Average 156 Farms:</u>								
Beginning year (owned)	899	\$1,309,453	284	\$405,532	263	\$233,490	241	\$118,454
+ Change w/o appreciation		81,620		6,192		6,300		111
+ Appreciation		<u>-165,069</u>		<u>-51,975</u>		<u>-46,331</u>		<u>-35,563</u>
End year (owned)	954	\$1,226,004	289	\$359,748	269	\$193,459	244	\$83,002
End including leased	960							
Average number	939		797 (all age groups)					

Historically, there has been a strong relationship between farm size and net farm income on well-managed dairy farms. In 2018, this relationship is apparent, with income rising as herd size increases.

Chart 6.



Total milk sold and milk sold per cow, along with components produced, are extremely valuable measures of size and productivity, respectively, on the dairy farm. These measures of milk output are based on pounds of milk marketed during the year. Farm managers that receive milk weights should compare milk sold per cow with their rolling herd average on the test date nearest December 31st to see how close the estimate of milk produced is to actual milk sales.

Table 28.

MILK PRODUCTION 156 New York Dairy Farms, 2018	
Item	Average 156 Farms
Total milk sold, lbs.	24,187,983
Milk sold per cow, lbs.	25,752
Butterfat per cow, lbs.	1,000 ²⁷
Protein per cow, lbs.	797 ²⁷
Total butterfat and protein per cow, lbs	1,797 ²⁷
Other solids per cow, lbs.	1,482 ²⁷
Total components per cow, lbs.	3,279 ²⁷

²⁷ This data is an average for the 138 farms that provided the data.

Table 29.

ANIMALS LEAVING THE HERD 156 New York Dairy Farms, 2018		
	Average 156 Farms	
	Number	Percent ²⁸
Cows sold for beef	251	26.8
Cows sold for dairy	16	1.7
Cows died	55	5.8
Culling rate ²⁹	---	33.0

²⁸Percent of average number of cows in the herd.

²⁹Cows sold for beef plus cows died.

The relationship between milk output per cow and net farm income on all dairy farms is shown in Table 30 and diagrammed in Charts 7 and 8. Each spot on the diagrams represents one of the 156 farms. Farms with higher rates of production tend to have higher net farm incomes. This is also influenced by larger herd sizes; the combination of high production per cow and more cows per farm generally has led to higher net farm incomes.

Table 30.

MILK SOLD PER COW AND FARM INCOME MEASURES 156 New York Dairy Farms, 2018					
Pounds of Milk Sold Per Cow	Number of Farms	Average Number of Cows	Net Farm Income without Appreciation	Net Farm Income Per Cow	Labor & Management Income/Operator
Under 20,000	18	226	-\$18,448	-\$81	-\$78,939
20,000 to 22,999	17	445	-\$84,949	-\$191	-\$188,352
23,000 to 24,999	30	983	\$168,465	\$171	-\$123,523
25,000 to 25,999	26	1,128	\$164,763	\$146	-\$126,601
26,000 to 26,999	24	1,239	\$133,808	\$108	-\$186,967
27,000 to 27,999	26	1,181	\$139,735	\$118	-\$126,201
28,000 & over	15	944	\$202,327	\$214	-\$92,171

Historically, net farm income per cow has increased as pounds of milk sold per cow increased. This trend continued in 2018, with total net farm income and net farm income per cow increasing slightly over the range of milk production per cow, but with a relatively low R-squared value.

Chart 7.

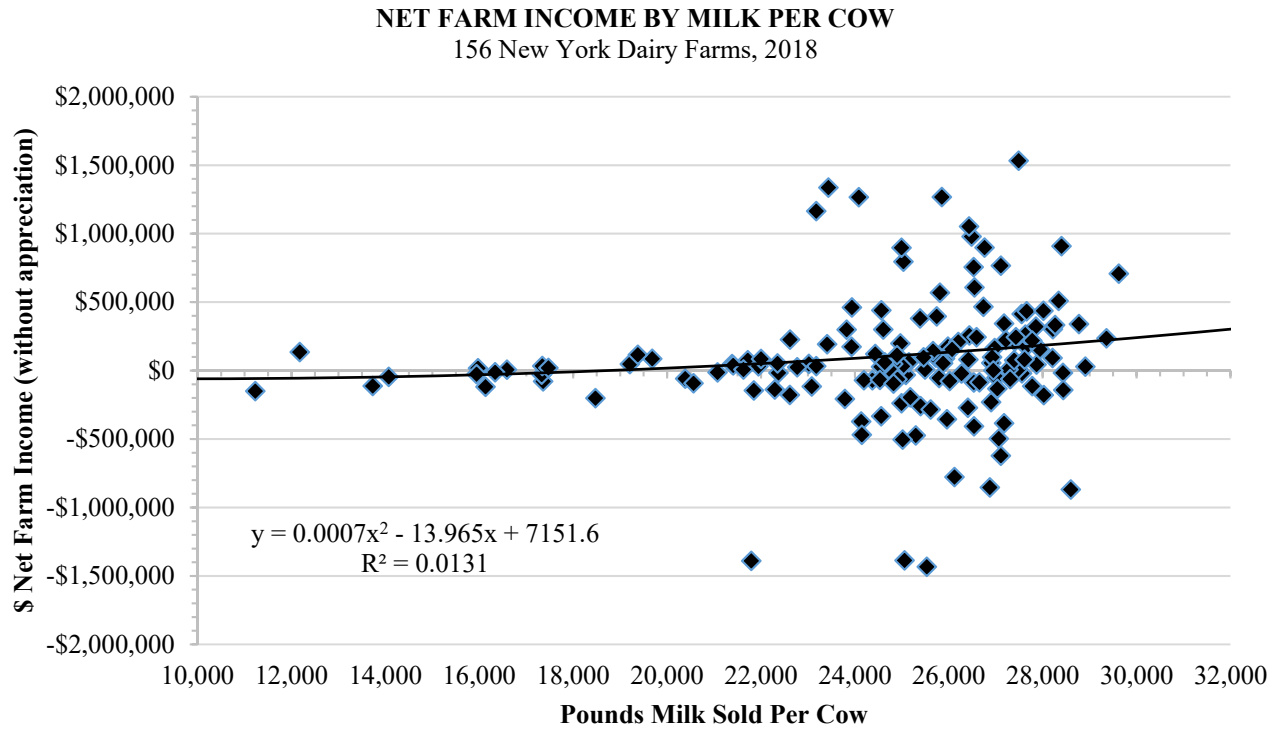
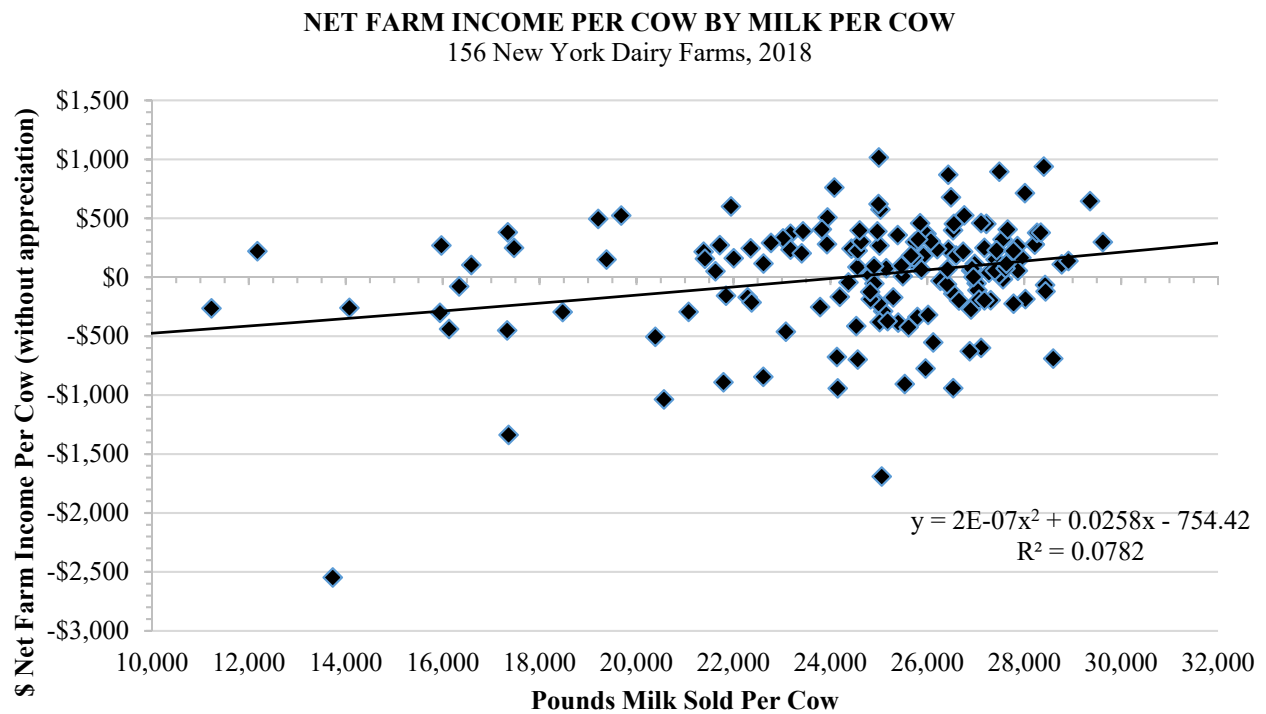


Chart 8.



Cost of Producing Milk

The cost of producing milk has been compiled using the whole farm method and is featured in the following table. Accrual receipts from milk sales can be compared with the accrual costs of producing milk per cow and per hundredweight of milk. Using the whole farm method, operating costs of producing milk are estimated by deducting non-milk accrual receipts from total accrual operating expenses including expansion livestock purchased. Purchased inputs cost of producing milk are the operating costs plus depreciation. Total costs of producing milk include the operating costs of producing milk plus depreciation on machinery and buildings, the value of unpaid family labor, the value of operators' labor and management, and the interest charge for using equity capital.

The following steps are used in the calculations:

1. The cost of expansion livestock is added to total accrual operating expenses to offset any related inventory increase included in accrual receipts.
2. Accrual milk sales are deducted from total accrual receipts to get total accrual non-milk receipts which are used to represent total non-milk operating costs.
3. Total accrual non-milk receipts are subtracted from total accrual operating expenses including expansion livestock to calculate the operating costs of producing milk.
4. Machinery depreciation and building depreciation are added to operating costs to determine the purchased inputs cost of producing milk.
5. The opportunity costs of equity capital, operator's labor and operator's management, and the value of unpaid family labor are added to all other costs to obtain the total costs of producing milk. This cost includes all the operating, depreciation, and imputed costs of producing milk.

Table 31. COST OF PRODUCING MILK WHOLE FARM METHOD CALCULATIONS

156 New York Dairy Farms, 2018			
Item	Average 156 Farms		
Total Accrual Operating Expenses	\$	4,232,396	
Expansion Livestock, Accrual	+	32,904	
1. Total Accrual Operating Expenses, Including Expansion Livestock			\$ 4,265,301
Total Accrual Receipts	\$	4,769,771	
Milk Sales, Accrual	-	4,174,214	
2. Total Accrual Nonmilk Receipts			- 595,999
3. Operating Costs of Producing Milk			\$ 3,669,302
Cwt. of Milk Sold	÷	241,880	
Operating Costs/Cwt.	=	\$15.17	
Machinery Depreciation			+ 211,888
Building Depreciation			+ 178,504
Extraordinary Expenses			+ 2,590
4. Purchased Inputs Cost of Producing Milk			\$ 4,062,284
Cwt. of Milk Sold	÷	241,880	
Purchased Inputs Cost/Cwt.	=	\$16.79	
Family Labor Unpaid (\$2,950/month)			+ 3,640
Real Interest on Equity Capital			+ 357,661
Value of Operators' Labor & Management			+ 179,796
5. Total Costs of Producing Milk			\$ 4,603,381
Cwt. Milk Sold	÷	241,880	
Total Costs/Cwt.	=	\$19.03	

The three measures of the accrual cost of producing milk on a per cow and per hundredweight basis are compared with accrual receipts from milk sales in Table 32.

Table 32.

ACCRUAL RECEIPTS FROM DAIRY AND COST OF PRODUCING MILK 56 New York Dairy Farms, 2018
Average 15

Item	Total	Per Cow	Per Cwt.
<u>Accrual Costs of Producing Milk</u>			
Operating costs	\$ 3,669,302	\$ 3,907	\$ 15.17
Purchased inputs costs	\$ 4,062,284	\$ 4,325	\$ 16.80
Total Costs	\$ 4,603,381	\$ 4,901	\$ 19.03
<u>Accrual Receipts From Milk</u>			
Net Milk Receipts	\$ 4,174,214	\$ 4,444	\$ 17.26
Net Farm Income			
without appreciation	\$ 111,929	\$ 119	\$ 0.46
Net Farm Income			
with appreciation	-\$ 11,654	-\$ 13	-\$ 0.05

The operating cost of producing milk on all 156 dairy farms averaged \$15.17 per hundredweight, leaving just \$2.09 per hundredweight to cover depreciation, unpaid labor and operator resources.

The total cost of producing milk on the 156 dairy farms averaged \$19.03 per hundredweight, \$1.77 more than the average price received for milk sold from these farms during 2018. The imputed costs or charge for the operator's labor, management and equity capital averaged \$2.24 per hundredweight in 2018; however, the farm operator received only \$0.47 per hundredweight for these inputs.

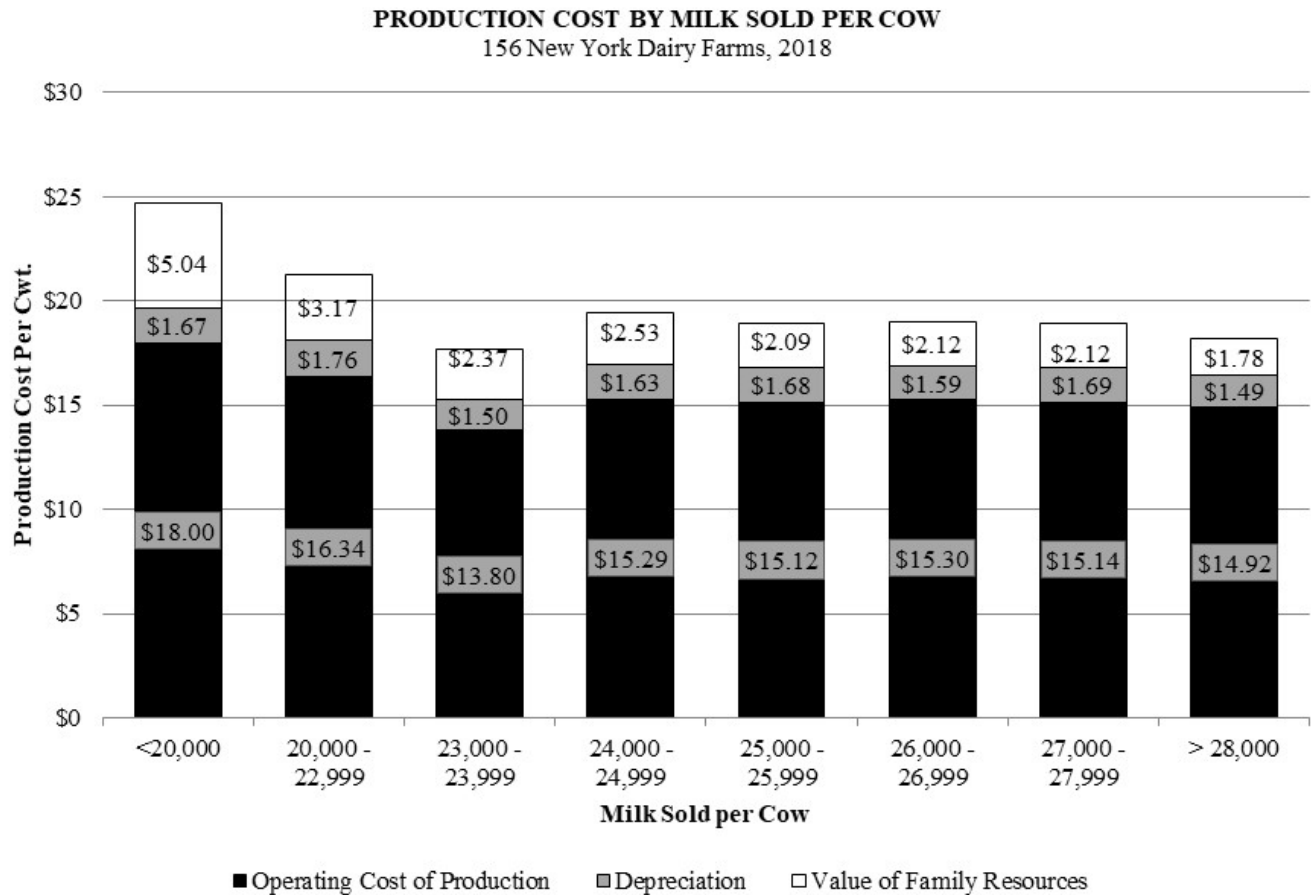
The strong relationship between milk output per cow and the total cost of producing milk is shown in Table 33 and Chart 9. Farms selling less than 23,000 pounds of milk per cow had average total costs of production of \$22.99 per hundredweight while those selling 26,000 pounds and over averaged \$18.72 for a difference of \$4.27 per hundredweight.

Table 33.

FARM COST OF PRODUCING MILK BY MILK SOLD PER COW
156 New York Dairy Farms, 2018

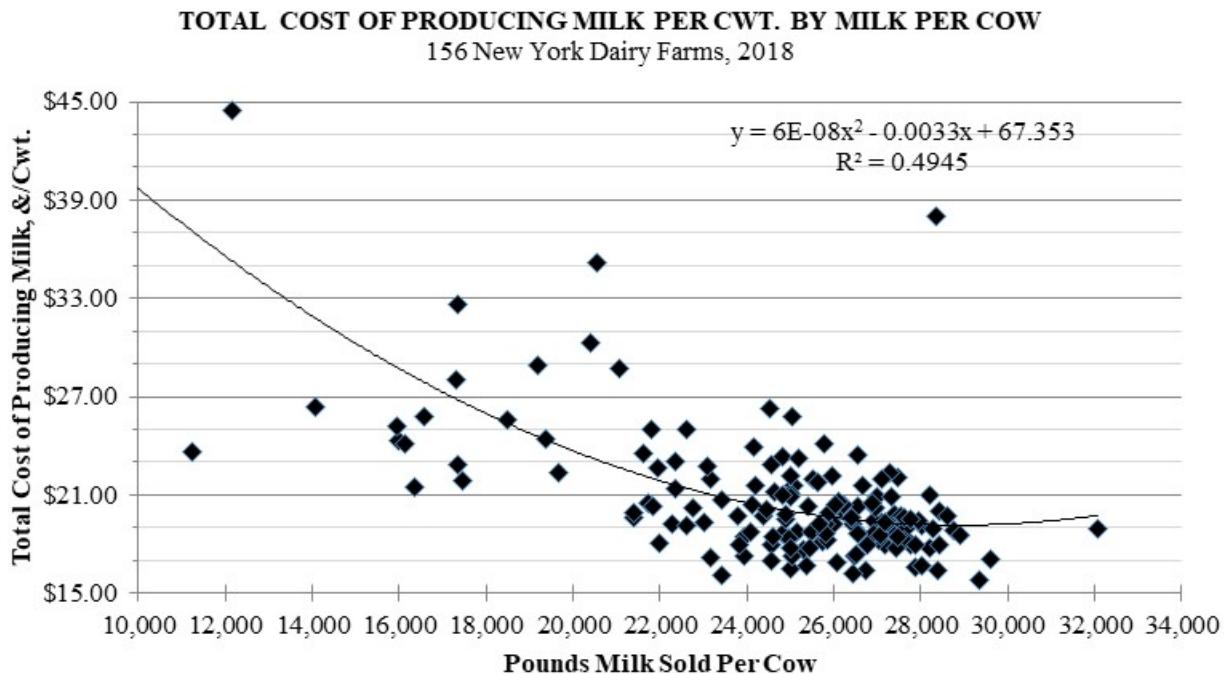
Pounds Milk Sold Per Cow	Costs per Hundredweight					Accrual Receipts From Milk Per Cwt.	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 20,000	\$2.93	\$5.63	\$18.00	\$19.67	\$24.71	\$19.16	-\$0.51
20,000-22,999	3.02	5.77	16.34	18.10	21.27	17.24	-0.87
23,000-23,999	3.06	5.09	13.80	15.30	17.67	16.59	1.29
24,000-24,999	2.98	5.70	15.29	16.92	19.45	17.29	0.37
25,000-25,999	2.73	6.13	15.12	16.80	18.89	17.37	0.57
26,000-26,999	3.35	5.73	15.30	16.89	19.01	17.29	0.41
27,000-27,999	2.86	5.79	15.14	16.83	18.95	17.26	0.43
28,000 & over	2.82	5.98	14.92	16.41	18.19	17.09	0.67

Chart 9.



The relationship between total cost of producing milk and milk sold per cow is diagrammed in Chart 10. As milk sold per cow increases, on average, total cost of production generally decreases.

Chart 10.



Data in Table 34 and Chart 11 show that the average total cost of production generally declines as herd size increases. This is attributable to spreading the value of family resources over more units of output.

Total operating costs are lowest at the largest herd size group, followed by the smallest. As hired labor provides a higher percentage of labor on farms, operating costs tend to increase. However, as farm size continues to increase, there appears to be labor efficiencies and other cost efficiencies that offset the increases in hired labor and lead to lower operating costs.

Table 34.

FARM COST OF PRODUCING MILK BY HERD SIZE

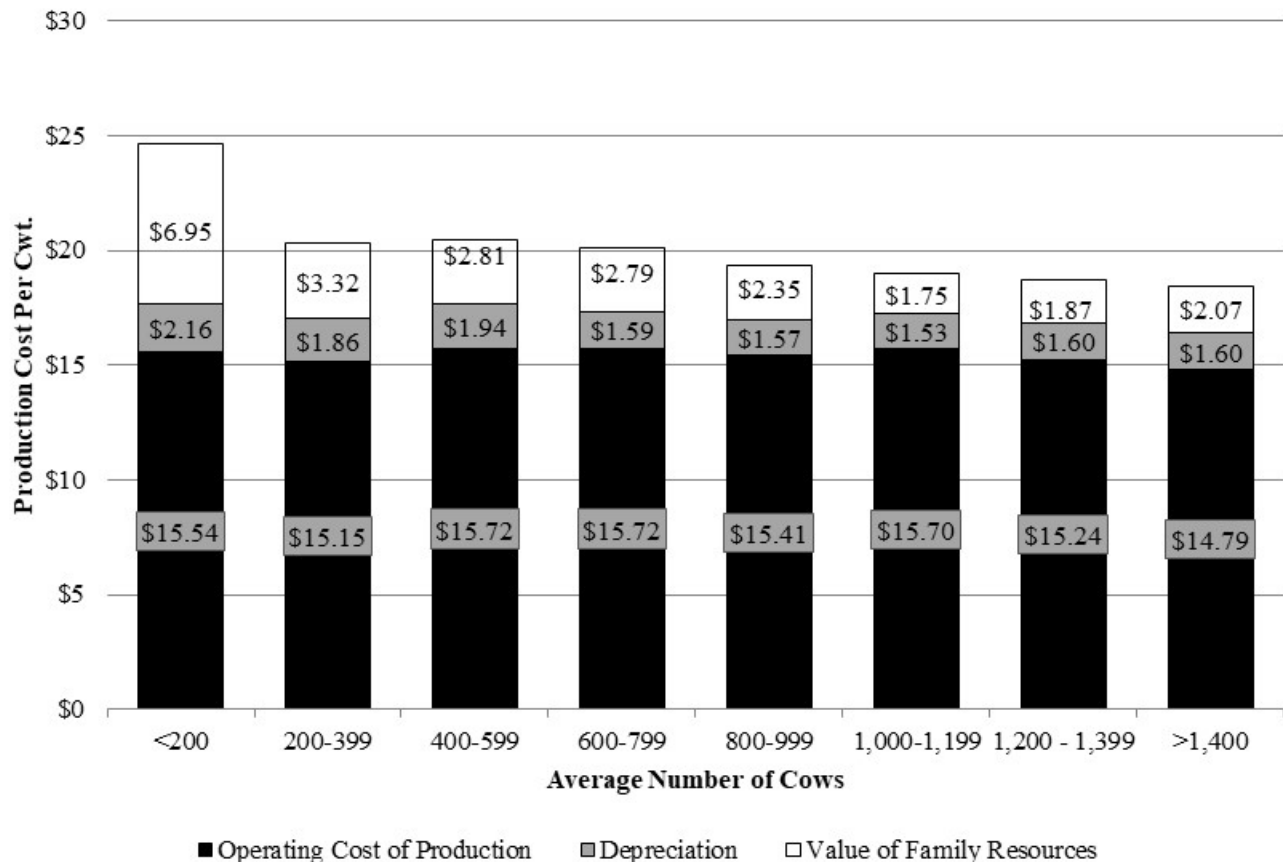
156 New York Dairy Farms, 2018

Number of Cows	Costs per Hundredweight					Accrual Receipts From Milk	Return Per Cwt. To Operator's Labor, Mgmt. & Capital
	Operating Costs		Costs of Producing Milk				
	Hired Labor	Dairy Grain & Concentrate	Total Operating	Purchased Inputs	Total		
Under 200	\$1.55	\$5.86	\$15.54	\$17.70	\$24.65	\$17.18	-\$0.52
200 to 399	2.29	5.95	15.15	17.01	20.32	17.10	0.09
400 to 599	2.80	5.80	15.72	17.66	20.47	17.06	-0.61
600 to 799	3.12	5.96	15.72	17.32	20.11	17.71	0.39
800 to 999	2.76	5.94	15.41	16.98	19.33	17.07	0.09
1,000 to 1,199	3.10	5.92	15.70	17.23	18.98	17.39	0.16
1,200 to 1,399	3.05	6.01	15.24	16.84	18.71	17.36	0.52
1,400 and over	3.05	5.64	14.79	16.39	18.46	17.21	0.82

Chart 11.

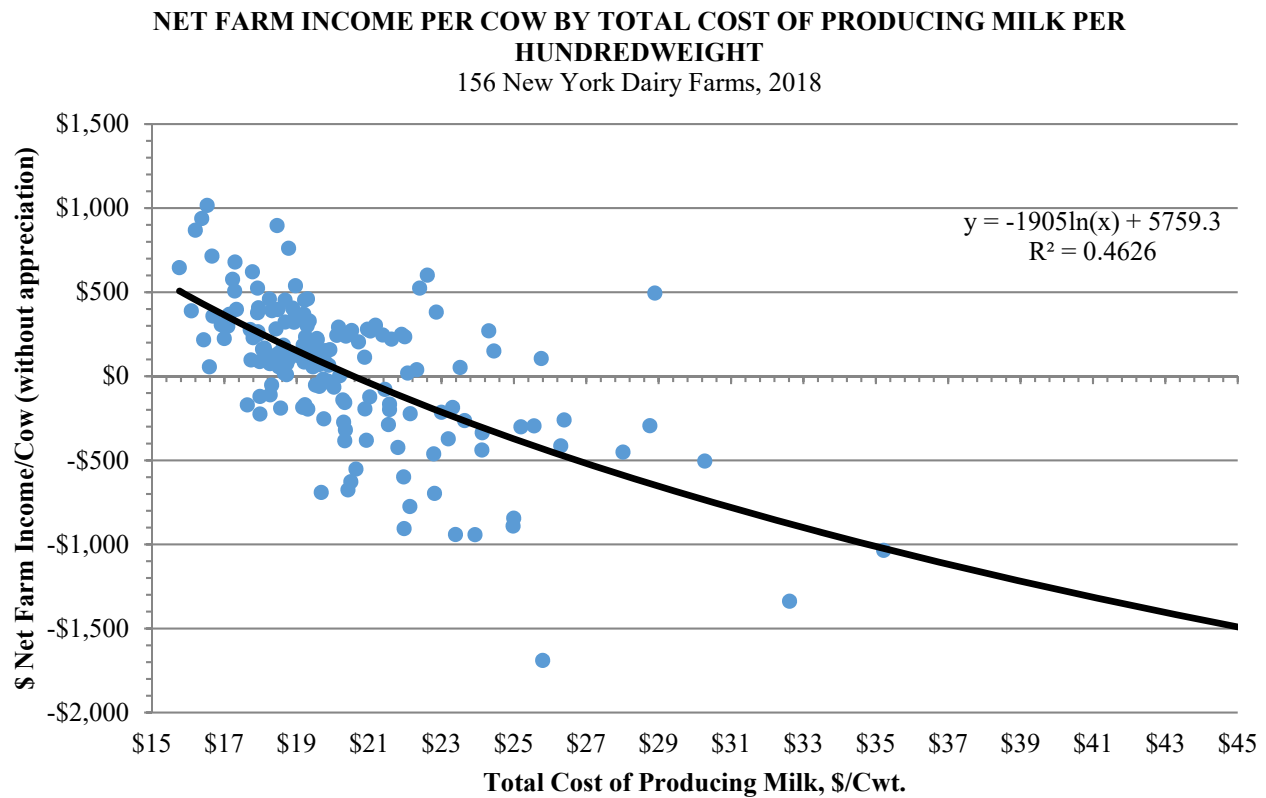
PRODUCTION COST BY HERD SIZE

156 New York Dairy Farms, 2018



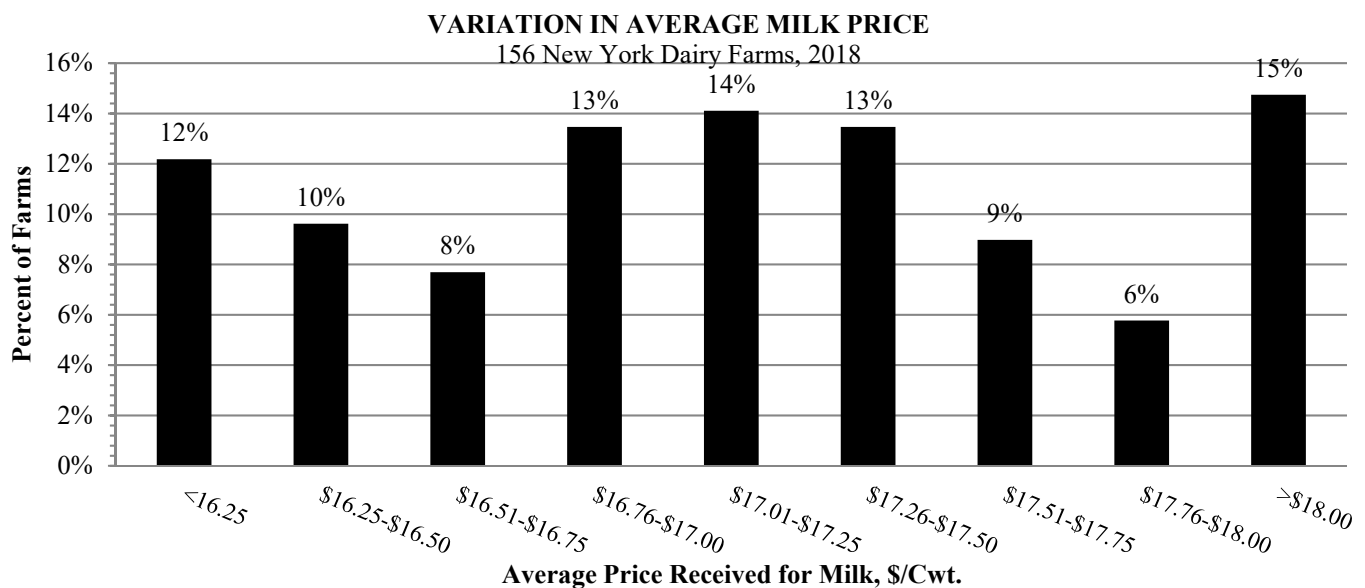
The importance of cost control and its impact on farm profitability are illustrated in Chart 12. As the total cost of producing milk per hundredweight increased, net farm income per cow fell. The majority of farms with net farm income per cow over \$500 had total costs below \$21 per hundredweight.

Chart 12.



The average price per hundredweight of milk sold is calculated by dividing gross milk receipts by the total hundredweights of milk sold. There is considerable variation among participating farms. The variations in average price received and the distribution of the farms around the mean are shown below. The average gross milk price for the 156 farms was \$18.47 per hundredweight. (Table 32)

Chart 13.



The accrual operating expenses most commonly associated with the dairy enterprise are listed in the table below. Evaluating these costs per unit of production enables an evaluation of the dairy enterprise.

Table 35.

DAIRY RELATED ACCRUAL EXPENSES 56 New York Dairy Farms, 2018

Average 156 Farms

Item	Per Cow	Per Cwt.
Purchased dairy grain & concentrate	\$ 1,495	\$ 5.80
Purchased dairy roughage	94	0.36
Total Purchased Dairy Feed	\$ 1,589	\$ 6.17
Purchased grain & concentrate as % of milk receipts		34%
Purchased feed & crop expense	\$ 1,860	\$ 7.22
Purchased feed & crop expense as % of milk receipts		42%
Breeding	\$ 54	\$ 0.21
Veterinary & medicine	150	0.58
Milk marketing	303	1.18
Bedding	83	0.32
Milking supplies	83	0.32
Cattle lease	3	0.01
Custom boarding	75	0.29
bST expense	0	0.00
Livestock professional fees	15	0.06
Other livestock expenses	21	0.08

Feed costs per cow and per hundredweight of milk sold are influenced by a number of factors. These cost measures are affected by the amount of homegrown grains fed, quality, and quantity of the roughage harvested, and the number of young stock. Feed costs are also influenced by the farmer's ability to purchase grains and concentrates at reasonable prices and to balance nutrients fed with energy and protein requirements.

Purchased dairy grain and concentrates per cow is calculated by dividing the total accrual expenses for dairy grains and concentrates purchased by the average number of cows. Because this also included the amount spent for calf and heifer feed, including milk replacer, it actually represents feed cost for one cow and associated replacements being raised.

Purchased feed and crop expense per hundredweight of milk is one of the most useful feed cost measures because it accounts for some of the variations in feeding and cropping programs and milk production between herds. It includes all purchased feeds used on the farm and it includes crop expenses that are associated with feed production. It does not represent total feed costs because machinery, labor, and other costs of producing feed crops are excluded.

Purchased grain and concentrates as percent of milk sales is calculated by dividing feed purchased by milk receipts. This is another useful measure of feed efficiency, although variations in homegrown grains fed, heifers fed, and milk prices can have an impact. Purchased feed and crop expense as percent of milk sales removes much of the variation caused by the feeding of homegrown grains.

Cost control has an important effect on farm profitability. The relationship between purchased feed and crop expense per hundredweight of milk and farm profitability is shown on page 38. Generally, as purchased feed and crop expenses decrease, profits increase. However, this isn't always true; if milk production falls too low, profits may actually decrease. Net milk income over purchased concentrate per cow shows a similar relationship when compared to rate of return on assets without appreciation.

Table 36.

**PURCHASED FEED AND CROP EXPENSE PER HUNDREDWEIGHT
OF MILK AND FARM INCOME MEASURES**

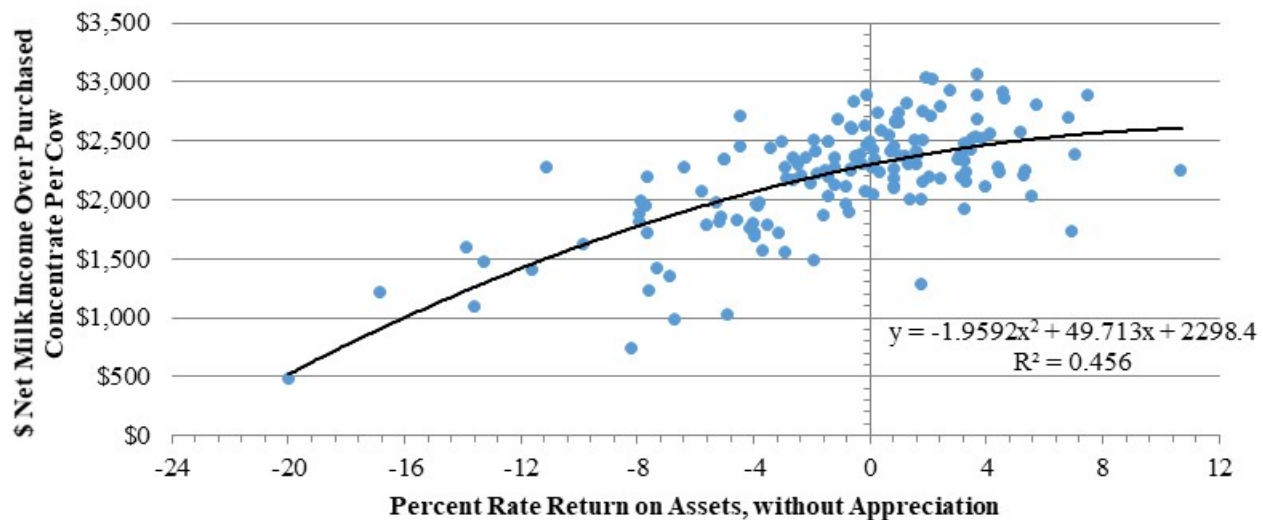
156 New York Dairy Farms, 2018

Feed & Crop Expense Per Cwt. of Milk	Number of Farms	Number of Cows	Forage Dry Matter Harvested Per Cow	Pounds Milk Per Cow	Net Farm Income Without Appreciation	Labor & Management Income Per Operator	Labor & Management Per Operator Per Cow
\$8.25 or more	18	804	7.5	24,453	-\$89,183	-\$124,151	-\$154
7.75 to 8.24	27	1,002	7.2	25,443	-7,584	-149,947	-149
7.50 to 7.74	23	624	7.8	25,854	65,386	-109,262	-175
7.00 to 7.49	26	1,135	8.3	26,865	95,360	-126,793	-117
6.50 to 6.99	32	942	7.7	26,162	208,530	-81,190	-86
6.00 to 6.49	17	1,337	7.7	24,845	314,540	-88,995	-67
Less than 6.00	13	636	7.4	25,892	251,359	-21,848	-34

Chart 14.

**NET MILK INCOME OVER PURCHASED CONCENTRATE PER COW BY
RETURN ON ASSETS**

156 New York Dairy Farms, 2018



Milk Income and Marketing Expense Breakdown

To examine the breakdown of the gross milk income and the marketing expenses, data is used from farms that filled out a detailed form including all the different sources of income for milk sales and the milk marketing expenses on an accrual basis. This information is reported in Tables 37 and 38. The tables are divided into six different sections, each representing a different area of income or expense. The cumulative total for these six sections is the net price received on farms.

The component value is the portion of the milk check that is generated from the butterfat, protein, and other solids that are produced. All farms are paid the same value per pound of components produced, with the variation in the component portion of the milk price being driven by the percent of component production and when during the year the components were produced.

The PPD (Producer Price Differential) is the location adjustment associated with the federal milk marketing order and is primarily dictated by where the business is located within the state.

Premiums are the additional sources of milk revenue associated with quality premiums, volume, and market premiums.

Deductions are those expenses associated with the sale of milk that are deducted on the milk check. These include milk hauling, stop charges, fuel surcharges, state and federal promotion, cwt program expense, co-op dues, and marketing adjustments.

Marketing Programs is where the net benefit associated with marketing programs associated with utilization of the futures markets or other programs to market milk or manage milk price risk.

Patronage reports the cooperative earnings associated with the sale of milk that was returned to member farms.

Table 37 reports the averages for the farms providing this data. Table 38 contains the quintile averages for each of the individual lines of the report. This table is in a farm business chart format with each item sorted independently and ranked by fifths. Numbers for the different sections will not add to the totals for that quintile or to the net price received because each item is sorted independently. This table shows the range of income and expenses received by farms for all the different sections.

Table 37.

AVERAGE³⁰ MILK INCOME AND MARKETING REPORT
140 New York Dairy Farms, 2018

	Pounds	Percent	Price/Pound	Total	\$/Cwt of Milk
BASE FARM PRICE					
Butterfat	1,033,890	3.91%	\$2.53	\$2,614,312	\$9.89
Protein	822,775	3.10%	\$1.65	\$1,352,942	\$ 5.11
Solids	1,530,961	5.79%	\$0.15	\$228,995	\$ 0.86
Total Component Contribution					\$ 15.86
PPD	26,565,624			\$176,441	\$ 0.67
Base Farm Price					\$ 16.53
Premiums					
Quality				\$69,754	\$ 0.26
Volume				\$19,800	\$ 0.06
Market Premiums				\$61,336	\$ 0.17
Total Premiums					\$ 0.50
BASE FARM PRICE + PREMIUM					\$ 17.03
<hr style="border-top: 1px dashed black;"/>					
Deductions					
Promo				\$39,958	\$ 0.15
Hauling				\$185,726	\$ 0.72
Coop Dues				\$86,997	\$ 0.31
Total Deductions				\$265,438	\$ 1.19
BASE FARM PRICE + PREMIUMS – DEDUCTIONS					\$ 15.84
Marketing Programs					
Futures Contracts, Forward Contracting, Etc.				\$11,173	\$ 0.09
Total Marketing Income					\$ 0.09
Patronage Dividends				\$52,101	\$ 0.18
NET PRICE RECEIVED ON FARM, ALL SOURCES					\$ 16.11
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.					\$ -0.03

³⁰ Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals. However, detail in the “\$/Cwt of Milk” column will result in the totals.

Table 38.

MILK PRICE INFORMATION BY QUINTILE³¹
 (Each Category Sorted Independently)
 140 New York Dairy Farms, 2018

	Lowest Quintile	←————→			Highest Quintile
Butterfat, %	3.72	3.81	3.88	3.96	4.19
Protein, %	2.99	3.05	3.09	3.13	3.26
Other Solids, %	5.64	5.74	5.77	5.78	6.01
Butterfat, \$ per Cwt.	9.38	9.63	9.81	10.05	10.60
Protein, \$ per Cwt.	4.90	5.02	5.09	5.15	5.39
Other solids, \$ per Cwt.	0.82	0.85	0.86	0.87	0.91
Total Component Value per Cwt.	\$ 15.24	\$ 15.55	\$ 15.75	\$ 16.03	\$ 16.75
PPD, \$ per Cwt.	0.37	0.52	0.60	0.72	1.11
Base Farm Price per Cwt.	\$ 15.78	\$ 16.17	\$ 16.40	\$ 16.72	\$ 17.57
Quality, \$ per Cwt.	0.02	0.15	0.24	0.35	0.53
Volume, \$ per Cwt.	0.00	0.00	0.02	0.07	0.23
Market premium, \$ per Cwt.	-0.01	0.00	0.00	0.08	0.80
Total Premium, \$ per Cwt.	0.09	0.24	0.36	0.54	1.24
Base Farm Price + Premiums per Cwt.	\$ 16.09	\$16.55	\$ 16.93	\$ 17.28	\$ 18.28
Promotion, \$ per Cwt.	0.14	0.15	0.15	0.15	0.16
Hauling, \$ per Cwt.	0.42	0.58	0.67	0.83	1.10
Coop Dues, \$ per Cwt.	0.03	0.09	0.21	0.58	0.67
Total Deductions per Cwt.	\$ 0.73	\$ 0.93	\$ 1.16	\$1.36	\$ 1.75
Base + Premiums – Deductions per Cwt.	\$ 14.89	\$ 15.36	\$ 15.72	\$ 16.13	\$ 17.10
Futures contract, forward contracting, \$ per Cwt.	-0.01	0.00	0.00	0.10	0.36
Total Marketing Income, \$ per Cwt.	\$-0.01	\$ 0.00	\$ 0.00	\$ 0.10	\$ 0.36
Patronage Dividends, \$ per Cwt.	\$0.00	\$ 0.00	\$ 0.03	\$ 0.14	\$ 0.73
Net Price Received From All Sources, \$ per Cwt.	\$ 15.06	\$ 15.56	\$ 16.01	\$ 16.52	\$ 17.40
Net Marketing Value (PPD + Total Premiums – Total Deductions), \$ per cwt.	\$-0.70	\$-0.35	\$-0.08	\$ 0.15	\$ 0.84

³¹ Each calculation of an average is independent of all others. Therefore, math operations on the detail will not result in the totals.

Capital and Labor Efficiency Analysis

Capital efficiency factors measure how intensively the capital is being used in the farm business. Measures of labor efficiency are key indicators of management's success in generating products per unit of labor input.

Table 39.

CAPITAL EFFICIENCY				
156 New York Dairy Farms, 2018				
Item	Per Worker	Per Cow	Per Tillable Acre	Per Tillable Acre Owned
<u>Average 156 Farms:</u>				
Farm capital	\$ 566,776	\$ 11,664	\$ 6,373	\$ 11,810
Real estate		5,482		5,550
Machinery & equipment	86,709	1,784	975	
<u>Ratios</u>				
Asset turnover ratio	Operating Expense	Interest Expense	Depreciation Expense	
0.42	0.86	0.04	0.08	

Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets. The relationship the asset turnover ratio has to farm profitability and other factors is shown in the above table. As a general rule, dairy farmers should aim for an asset turnover ratio of 0.6 or higher. The operational ratios reflect the relationship of expense categories to total farm receipts. The sum of the operating, interest, and depreciation expense ratios expresses total farm expenses per dollar of total farm receipts.

Measures of labor efficiency are key indicators of the work accomplished by an average worker. The average worker includes all hours worked by owners, family members, and hired employees. The average cows per worker is the number of cows taken care of per worker equivalent. Pounds of milk sold per worker equivalent is an important measure of labor efficiency that takes into account both the number of cows and milk production. Table 40 highlights labor efficiency measures. Table 41 lists the different sources of labor hours for the participating farms.

Table 40.

LABOR EFFICIENCY		
156 New York Dairy Farms, 2018		
Labor Efficiency	Total	Per Worker ³²
Cows, average number	939	48.6
Milk sold, pounds	24,187,983	1,251,588
Tillable acres	1,719	89

³² The method used to calculate worker equivalent incorporates the number of hours actually worked by the owner/operators, instead of using a standard 12 months for each full-time owner/operator of the business. A full-time month is specified to be 230 hours of labor per month.

Table 41.

LABOR FORCE INVENTORY AND ANALYSIS

156 New York Dairy Farms, 2018

Labor Force	Months	Age	Years of Education	Value of Labor & Mgmt.
Operator number 1	12.75	58	14	\$ 74,033
Operator number 2	8.94	52	14	51,467
Operator number 3	5.90	42	14	31,060
Operator number 4	2.65	16	4	14,146
Operator number 5	1.16			6,326
Operator number 6	0.46			2,765
Family paid	1.45			
Family unpaid	1.23			
Hired	<u>197.37</u>			
Total	231.91/	12 = 19.33 Worker Equivalent 2.33 Operator/Manager Equivalent		

Labor Costs	Average 156 Farms		
	Total	Per Cow	Per Cwt.
Value of operator(s) labor (\$3,200/month)	\$ 101,952	\$ 109	\$ 0.42
Family Unpaid (\$2,950/month)	3,629	4	0.02
Hired	<u>718,036</u>	<u>764</u>	<u>2.97</u>
Total Labor	\$ 823,616	\$ 877	\$ 3.41
Machinery Cost	<u>759,348</u>	<u>808</u>	<u>3.14</u>
Total Labor & Machinery	\$1,582,965	\$ 1,685	\$ 6.54
Hired labor expenses per hired worker equivalent		\$43,338	
Hired labor expense as % of milk sales		17.2%	

Table 42 shows the relationship between labor efficiency and return on all capital without appreciation. Labor efficiency improvements are one method that is used to allow the business to reward their employees while maintaining their labor costs per hundredweight of milk produced. A second area is improved cost control of day to day activities, which is one reason why some farms can generate higher than average profits while having some of the higher labor costs per hundredweight of milk sold. Chart 15 highlights the relationship between percent hired labor on the farm and hired labor costs per hundredweight. As the percent increases, the cost per hundredweight generally increases. The combination of annual hired cost per worker and labor efficiency has a large impact on what the hired cost per hundredweight will be.

Table 42.

MILK SOLD PER WORKER AND NET FARM INCOME

156 New York Dairy Farms, 2018

Pounds of Milk Sold per Worker	No. of Farms	No. of Cows	Pounds Milk per Cow	Operating Expense Ratio	Net Farm Income (without Appreciation)	Labor & Management Income per Operator
Under 700,000	17	105	18,863	0.92	-4,107	-51,615
700,000 to 899,999	16	334	21,895	0.90	-21,437	-79,262
900,000 to 999,999	12	472	21,670	0.91	-119,461	-159,423
1,000,000 to 1,099,999	15	994	25,575	0.90	-30,601	-206,841
1,100,000 to 1,199,999	28	942	25,502	0.88	-52,638	-219,028
1,200,000 to 1,299,999	20	1,022	26,475	0.86	180,338	-108,400
1,300,000 to 1,499,999	29	1,633	26,386	0.84	392,664	-111,423
1,500,000 and Greater	17	1,332	26,655	0.84	339,403	-108,409

Chart 15.

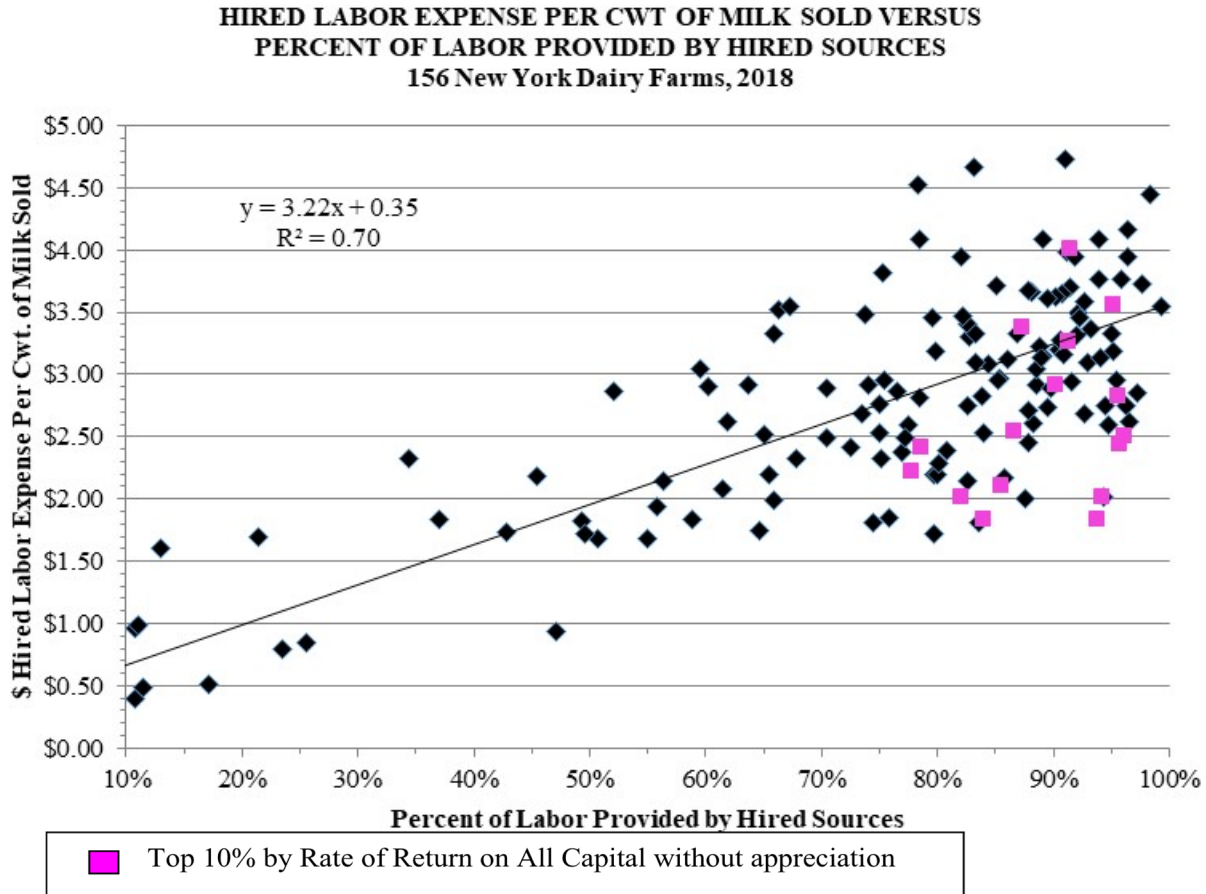


Table 43 below is the business chart for labor costs on a per worker equivalent and per hour basis and shows the range of costs for 148 farms. Hired labor expenses are all paid expenses that are associated with labor, including gross wages, workman's compensation, health, insurance, federal and state employment taxes, and other paid benefits.

Table 43.

HIRED LABOR EXPENSE BUSINESS CHART
148 New York Dairy Farms with Hired Labor, 2018

Decile	Percent of Labor from Hired Sources	Hired Labor Expense per Cwt	Hired Labor Expense as % of Milk Sales	Hired Labor Expense per Hired Worker Equivalent	Hired Labor Expense per Hour
Average of Lowest Decile	22%	\$1.06	2%	\$26,179	\$9.49
	56	1.84	10	34,588	12.53
	69	2.15	12	37,289	13.51
	77	2.45	14	39,314	14.24
	81	2.70	15	40,690	14.74
	85	2.90	16	42,068	15.24
	88	3.12	18	43,622	15.81
	91	3.37	19	45,325	16.42
	94	3.62	21	47,689	17.28
Average of Highest Decile	96	4.15	23	57,332	20.77

HERD SIZE BREAKDOWN

With a large variation in herd size in New York state, the following section provides information about five different herd size categories: Less than 225 cows, 225 to 599 cows, 600 to 949 cows, 950 to 1,349 cows, and 1,350 cows and greater. Management and operating challenges are different across herd sizes and this information provides benchmarks that can be useful to compare to farms of similar size.

Table 44 summarizes the 5 herd size groups for selected data and shows what similarities and differences there are between the herd size groups.

For each herd size group, there are 6 tables. The first three report the herd profile for the size group, the next two report on the progress of the farm over two years for the farms in that herd size that participated both years. The final table is a business chart for 2018 for the specific category.

Less than 225 cows:	Tables 45 through 50
225 to 599 cows:	Tables 51 through 56
600 to 949 cows:	Tables 57 through 62
950 to 1,349 cows:	Tables 63 through 68
1,350 cows and greater:	Tables 69 through 74

The herd profile tables are a business management tool that can be utilized to assess strengths and weakness of a business. With each row sorted independently and each number representing an average of 20 percent of the farms, the range in any particular category is shown. Please note that each row is sorted independently, so it isn't necessarily the same farms represented in each quintile when looking through the herd profile. By placing a mark for their own business data, a business manager can see how the business compares to these herd profiles. Generally, the higher profit farms tend to have more marks to the left of average, and the farms with lower earnings tend to have more marks to the right of average.

The progress of the farm over last two years shows how the same farms changed from one year to the next for selected production, business, and financial measures along with the income and expenses per cow and per hundredweight. A business manager can look at how their business changed versus these different herd size groups.

The Farm Business Chart is a tool which can be used in analyzing a business in a manner similar to the herd profiles, except the different categories are in columns vs rows. A business manager can compare their business by drawing a line through or near the closest figure in each column that represents the current level of herd performance. The five figures in each column represents the average of each 20 percent or quintile of farms included in the summary. Use this information to identify business areas where more challenging goals or improvements are needed.

Table 44.

SELECTED BUSINESS FACTORS FOR FIVE HERD SIZE GROUPS

156 Dairy Farms, New York State, 2018

Item	<225 Cows	225 to 599 Cows	600 to 949 Cows	950 to 1,349 Cows	≥ 1,350 Cows
# of Farms	33	29	28	30	36
Size of Business					
Average Cows	122	424	768	1,126	2,081
Average Heifers	102	342	691	958	1,751
Acres per Cow	2.84	2.13	2.23	1.87	1.70
Number of Worker Equivalents	3.67	9.40	16.41	23.22	40.69
Number of Owner Operators	1.74	2.01	2.64	2.22	2.98
Rates of Production					
Milk Sold per Cow	21,710	24,676	24,759	26,765	25,974
Hay DM per Acre, Tons	2.5	3.4	2.7	3.4	3.3
Corn Silage per Acre, Tons	17.1	18.4	19.0	19.7	18.8
Percent Butterfat	3.90%	3.88%	3.82%	3.89%	3.88%
Percent Protein	3.11%	3.09%	3.01%	3.10%	3.10%
Cull Rate, Percent	34.0%	32.0%	36.0%	32.0%	32.0%
Labor Efficiency					
Cows per Worker	33.2	45.1	46.8	48.5	51.2
Milk Sold per Worker	720,264	1,112,311	1,159,064	1,297,594	1,328,652
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	7.20	7.28	7.52	7.42	7.04
Labor & Machinery Costs per Cow	\$2,156	\$1,820	\$1,713	\$1,704	\$1,622
Hired Labor Cost per Cwt.	\$1.70	\$2.71	\$2.92	\$3.04	\$3.04
Hired Labor Costs per Worker Equivalent	\$38,012	\$40,454	\$41,406	\$44,094	\$44,124
Crop Input Costs per Acre	\$85	\$135	\$146	\$144	\$152
Machinery Costs per Acre	\$357	\$450	\$386	\$451	\$452
Operating Cost of Producing Milk per Cwt.	\$15.55	\$15.54	\$15.73	\$15.42	\$14.83
Purch. Input Cost of Producing Milk per Cwt.	\$17.54	\$17.48	\$17.33	\$16.98	\$16.42
Total Cost of Producing Milk per Cwt.	\$23.45	\$20.35	\$19.93	\$18.88	\$18.46
Operating Expense Ratio	0.87	0.88	0.88	0.86	0.84
Capital Efficiency					
Farm Capital Per Cow	\$13,505	\$11,988	\$12,040	\$11,359	\$11,542
Machinery and Equipment per Cow	\$3,046	\$2,248	\$1,994	\$1,765	\$1,590
Real Estate per Cow	\$6,252	\$5,542	\$5,590	\$5,185	\$5,533
Asset Turnover Ratio	0.30	0.38	0.40	0.45	0.43
Working Capital as % of Tot. Oper. Expense	20%	17%	16%	15%	23%
Profitability					
Net Milk Price	\$15.98	\$15.84	\$16.26	\$16.18	\$16.03
Labor & Management Income per Operator	-\$47,766	-\$106,922	-\$109,154	-\$124,131	-\$126,687
Rate Return on Equity Capital w/o Apprec.	-8.6%	-5.4%	-2.9%	-0.8%	0.8%
Rate Return on All Capital w/o Apprec.	-5.0%	-1.9%	-0.3%	1.3%	2.1%
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.27	0.37	0.35	0.40	0.35
Farm Debt per Cow	\$3,577	\$4,364	\$4,148	\$4,384	\$3,936
Debt Coverage Ratio	0.90	1.06	0.43	0.70	1.34

Table 45.

SELECTED PRODUCTION AND FINANCIAL FACTORS

33 Farms Less Than 225 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	52	81	123	161	210
Average Heifers	35	63	108	139	181
Acres per Cow	1.72	2.29	2.76	3.58	6.36
Number of Worker Equivalents	1.9	2.6	3.5	4.6	6.3
Number of Owner Operators	1.0	1.0	1.6	2.3	3.0
Rates of Production					
Milk Sold per Cow	26,152	23,460	21,619	18,398	14,440
Hay DM per Acre, Tons	4.1	3.1	2.5	2.0	1.2
Corn Silage per Acre, Tons	21.8	19.6	18.1	14.7	7.2
Percent Butterfat	4.1	3.9	3.8	0.5	0.0
Percent Protein	3.2	3.1	3.1	0.4	0.0
Cull Rate, Percent	16.6	26.9	34.0	38.3	52.2
Labor Efficiency					
Cows per Worker	52.7	38.7	32.6	27.9	21.6
Milk Sold per Worker	1,080,354	875,289	733,349	537,410	355,390
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	5.40	6.62	7.35	7.73	8.33
Labor & Machinery Costs per Cow	1,599	1,931	2,109	2,431	3,229
Hired Labor Cost per Cwt.	0.00	0.64	1.57	2.18	3.10
Hired Labor Costs per Worker Equivalent	0	18,205	32,348	37,584	56,899
Crop Input Costs per Acre	26	51	84	118	160
Machinery Costs per Acre	142	294	371	443	634
Operating cost of Producing Milk per Cwt.	13.34	14.74	15.38	16.02	20.13
Purch. Input Cost of Producing Milk per Cwt.	14.99	16.48	17.62	18.42	23.55
Total Cost of Producing Milk per Cwt.	20.17	22.03	23.73	26.74	37.28
Operating Expense Ratio	0.75	0.84	0.88	0.92	1.16
Capital Efficiency					
Farm Capital Per Cow	9,081	11,143	12,382	16,052	22,496
Machinery and Equipment per Cow	1,505	2,270	2,850	3,800	6,056
Real Estate per Cow	3,294	4,656	5,609	7,834	12,969
Asset Turnover Ratio	0.49	0.39	0.31	0.23	0.14
Working Capital as % of Tot. Oper. Expense	59	35	22	12	-16
Profitability					
Labor & Management Income per Operator	-3,311	-19,282	-40,135	-73,415	-126,910
Rate Return on Equity Capital w/o Apprec.	-2.94	-5.32	-8.08	-12.27	-40.97
Rate Return on All Capital w/o Apprec.	-0.83	-3.39	-4.42	-7.23	-13.74
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.01	0.11	0.28	0.36	0.59
Farm Debt per Cow	141	1,395	3,419	5,686	7,564
Debt Coverage Ratio	3.42	0.96	0.36	0.02	-3.81

Table 46.

RECEIPTS AND EXPENSES PER COW
33 Farms Less Than 225 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	52	81	123	161	210
Cwt. of Milk Sold	8,644	15,467	25,961	35,648	51,287
<u>Accrual Operating Receipts</u>					
Milk	4,528	4,075	3,743	3,123	2,325
Dairy cattle	469	279	177	83	-137
Dairy calves	163	38	11	-5	-40
Other livestock	94	2	0	-2	-113
Crops	223	129	52	-27	-143
Miscellaneous receipts	516	285	173	111	35
Total Receipts	5,185	4,619	4,214	3,567	2,439
<u>Accrual Operating Expenses</u>					
Hired labor	0	131	292	480	754
Dairy grain & concentrates	716	1,080	1,198	1,415	1,713
Dairy roughage	0	0	0	13	145
Nondairy feed	0	0	0	0	16
Professional nutritional services	0	0	0	0	0
Machinery hire/rent/lease	1	19	75	156	313
Machinery repair & farm vehicle exp.	89	174	225	293	419
Fuel	110	152	180	210	248
Replacement livestock	0	0	0	0	120
Breeding	15	41	55	71	118
Veterinary, medicine & hoof care	18	72	106	137	229
Milk marketing	161	228	265	313	411
Bedding	16	53	76	89	157
Milking supplies	32	71	95	111	196
Cattle lease	0	0	0	0	5
Custom boarding	0	0	0	0	10
rBst expense	0	0	0	0	0
Livestock professional fees	0	0	12	33	120
Other livestock expense	4	29	47	66	119
Fertilizer & lime	11	51	83	118	185
Seeds & plants	20	64	84	106	168
Spray & other crop expenses	5	35	52	84	116
Crop professional fees	0	0	0	2	17
Land, building, fence repair	0	3	20	56	99
Taxes	55	87	118	152	215
Real estate rent/lease	5	20	41	72	193
Insurance	29	54	73	97	142
Utilities	50	73	101	141	237
Interest	4	53	150	276	414
Other professional fees	0	9	18	26	60
Miscellaneous	2	10	28	53	137
Total Farm Operating Costs	2,514	3,321	3,717	4,165	4,788
Expansion livestock	0	0	0	0	0
Extraordinary expenses	0	0	0	0	21
Machinery depreciation	120	212	261	362	785
Building depreciation	12	41	67	124	316
Total farm expense	2,755	3,639	4,265	4,781	5,319
Net Farm Income	438	259	40	-302	-1,028

Table 47.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

33 Farms Less Than 225 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	52	81	123	161	210
Cwt. of Milk Sold	8,644	15,467	25,961	35,648	51,287
<u>Accrual Operating Receipts</u>					
Milk	18.86	17.64	16.94	16.36	15.56
Dairy cattle	2.15	1.41	0.82	0.44	-0.83
Dairy calves	0.75	0.17	0.07	-0.03	-0.20
Other livestock	0.48	0.01	0.00	-0.01	-0.68
Crops	1.11	0.60	0.28	-0.12	-0.74
Miscellaneous receipts	2.64	1.34	0.93	0.52	0.16
Total Receipts	22.36	20.11	19.33	18.04	16.12
<u>Accrual Operating Expenses</u>					
Hired labor	0.00	0.64	1.57	2.18	3.10
Dairy grain & concentrates	4.05	5.44	5.97	6.54	7.11
Dairy roughage	0.00	0.00	0.00	0.06	0.59
Nondairy feed	0.00	0.00	0.00	0.00	0.06
Professional nutritional services	0.00	0.00	0.00	0.00	0.00
Machinery hire/rent/lease	0.01	0.10	0.35	0.70	1.47
Machinery repair & farm vehicle exp.	0.49	0.82	1.09	1.47	2.17
Fuel	0.57	0.71	0.83	1.04	1.43
Replacement livestock	0.00	0.00	0.00	0.00	0.75
Breeding	0.09	0.20	0.26	0.36	0.53
Veterinary, medicine & hoof care	0.10	0.37	0.51	0.63	1.03
Milk marketing	0.83	1.10	1.27	1.55	2.16
Bedding	0.08	0.29	0.35	0.45	0.71
Milking supplies	0.16	0.36	0.45	0.57	1.01
Cattle lease	0.00	0.00	0.00	0.00	0.02
Custom boarding	0.00	0.00	0.00	0.00	0.05
rBst expense	0.00	0.00	0.00	0.00	0.00
Livestock professional fees	0.00	0.00	0.06	0.17	0.53
Other livestock expense	0.02	0.17	0.22	0.32	0.59
Fertilizer & lime	0.06	0.28	0.39	0.59	0.88
Seeds & plants	0.11	0.30	0.40	0.48	1.02
Spray & other crop expenses	0.02	0.16	0.25	0.36	0.62
Crop professional fees	0.00	0.00	0.00	0.01	0.08
Land, building, fence repair	0.00	0.02	0.09	0.25	0.53
Taxes	0.25	0.39	0.56	0.76	1.44
Real estate rent/lease	0.02	0.10	0.19	0.37	1.19
Insurance	0.15	0.26	0.34	0.45	0.76
Utilities	0.26	0.38	0.46	0.66	1.31
Interest	0.02	0.24	0.74	1.33	2.11
Other professional fees	0.00	0.04	0.09	0.13	0.30
Miscellaneous	0.01	0.04	0.14	0.25	0.73
Total Farm Operating Costs	15.15	16.82	17.77	18.41	21.76
Expansion livestock	0.00	0.00	0.00	0.00	0.00
Extraordinary expenses	0.00	0.00	0.00	0.00	0.10
Machinery depreciation	0.63	1.01	1.21	1.83	4.27
Building depreciation	0.07	0.19	0.31	0.70	1.52
Total farm expense	16.53	18.77	19.70	20.88	25.56
Net Farm Income	2.21	1.18	0.18	-1.47	-6.53

Table 48.

PROGRESS OF THE FARM BUSINESS30 Farms Less Than 225 Cows, New York State, 2017 & 2018, DFBS³³

SELECTED FACTORS	Average of 30 Farms		Percent
	2017	2018	Change
<i>Size of Business</i>			
Average number of cows	125	125	0%
Average number of heifers	109	105	-4%
Milk sold, pounds	2,751,850	2,748,058	0%
Worker equivalent	3.7	3.7	0%
Total tillable acres	345	349	1%
<i>Rates of Production</i>			
Milk sold per cow, pounds	22,091	21,967	-1%
Hay DM per acre, tons	2.7	2.40	-11%
Corn silage per acre, tons	17.4	17.60	1%
<i>Labor Efficiency</i>			
Cows per worker	34.0	34.1	0%
Milk sold per worker, pounds	747,785	748,790	0%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.74	\$5.98	4%
Net milk income over purchased grain & conc. per cow	\$2,394	\$1,958	-18%
Dairy feed & crop expense per cwt. milk	\$7.15	\$7.23	1%
Labor and machinery costs per cow	\$2,080	\$2,144	3%
Hired labor costs per cwt. milk	\$1.73	\$1.74	1%
Hired labor costs per worker equivalent	\$36,698	\$38,337	4%
Operating cost of producing milk per cwt.	\$14.91	\$15.62	5%
Purchased input cost of producing milk per cwt.	\$16.75	\$17.63	5%
Total cost of producing milk per cwt.	\$22.49	\$23.36	4%
Net milk price	\$17.55	\$15.94	-9%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$13,752	\$13,805	0%
Machinery and equipment per cow	\$3,056	\$3,138	3%
Asset turnover ratio	0.35	0.29	-17%
<i>Profitability</i>			
Net farm income without appreciation	\$50,802	-\$12,617	-125%
Net farm income without appreciation per cow	\$408	-\$101	-125%
Net farm income with appreciation	\$82,356	-\$41,446	-150%
Net farm income with appreciation per cow	\$661	-\$331	-150%
Labor & management income per operator/manager	-\$15,173	-\$51,989	-243%
Rate return on equity capital with appreciation	-0.9%	-10.7%	-1089%
Rate return on equity capital without appreciation	-3.3%	-8.4%	-152%
Rate return on all capital with appreciation	0.4%	-6.5%	-1725%
Rate return on all capital without appreciation	-1.4%	-4.8%	-238%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$1,304,060	\$1,240,734	-5%
Debt to asset ratio	0.26	0.27	4%
Farm debt per cow	\$3,570	\$3,674	3%
Debt coverage ratio	1.19	0.38	-68%

³³ Farm participating both years

Table 49.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

30 Farms Less Than 225 Cows, New York State, 2017 & 2018, DFBS

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	125		125		0%
Cwt. of milk sold		27,519		27,481	0%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,109	\$18.60	\$3,773	\$17.18	-8%
Dairy cattle	\$302	\$1.37	\$155	\$0.71	-48%
Dairy calves	\$13	\$0.06	\$49	\$0.22	267%
Other livestock	\$11	\$0.05	-\$1	-\$0.01	-120%
Crops	\$10	\$0.05	\$49	\$0.22	340%
Miscellaneous receipts	<u>\$160</u>	<u>\$0.72</u>	<u>\$223</u>	<u>\$1.02</u>	42%
Total Operating Receipts	\$4,604	\$20.84	\$4,248	\$19.34	-7%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$383	\$1.73	\$383	\$1.74	1%
Dairy grain & concentrate	\$1,269	\$5.74	\$1,314	\$5.98	4%
Dairy roughage	\$28	\$0.13	\$40	\$0.18	38%
Nondairy feed	\$0	\$0.00	\$4	\$0.02	NA
Professional nutritional services	\$0	\$0.00	\$0	\$0.00	NA
Machine hire, rent & lease	\$111	\$0.50	\$124	\$0.56	12%
Machine repair & vehicle expense	\$270	\$1.22	\$238	\$1.08	-11%
Fuel, oil & grease	\$147	\$0.67	\$180	\$0.82	22%
Replacement livestock	\$10	\$0.05	\$14	\$0.06	20%
Breeding	\$67	\$0.30	\$60	\$0.27	-10%
Veterinary & medicine	\$141	\$0.64	\$132	\$0.60	-6%
Milk marketing	\$232	\$1.05	\$271	\$1.23	17%
Bedding	\$96	\$0.43	\$87	\$0.40	-7%
Milking supplies	\$91	\$0.41	\$91	\$0.41	0%
Cattle lease	\$0	\$0.00	\$2	\$0.01	NA
Custom boarding	\$0	\$0.00	\$3	\$0.02	NA
BST expense	\$2	\$0.01	\$0	\$0.00	-100%
Livestock professional fees	\$36	\$0.16	\$42	\$0.19	19%
Other livestock expense	\$36	\$0.16	\$50	\$0.23	44%
Fertilizer & lime	\$110	\$0.50	\$92	\$0.42	-16%
Seeds & plants	\$89	\$0.40	\$88	\$0.40	0%
Spray & other crop expense	\$75	\$0.34	\$53	\$0.24	-29%
Crop professional fees	\$8	\$0.04	\$3	\$0.01	-75%
Land, building & fence repair	\$64	\$0.29	\$40	\$0.18	-38%
Taxes	\$119	\$0.54	\$116	\$0.53	-2%
Real estate rent & lease	\$49	\$0.22	\$51	\$0.23	5%
Insurance	\$68	\$0.31	\$71	\$0.32	3%
Utilities	\$93	\$0.42	\$111	\$0.51	21%
Interest paid	\$147	\$0.67	\$183	\$0.84	25%
Other professional fees	\$20	\$0.09	\$19	\$0.09	0%
Miscellaneous	<u>\$25</u>	<u>\$0.11</u>	<u>\$45</u>	<u>\$0.21</u>	91%
Total Operating Expenses	\$3,784	\$17.13	\$3,906	\$17.78	4%
Expansion livestock	\$6	\$0.02	\$0	\$0.00	-100%
Extraordinary expenses	\$1	\$0.00	\$7	\$0.03	NA
Machinery depreciation	\$315	\$1.42	\$331	\$1.51	6%
Real estate depreciation	<u>\$91</u>	<u>\$0.41</u>	<u>\$105</u>	<u>\$0.48</u>	17%
Total Expenses	\$4,197	\$18.98	\$4,349	\$19.80	4%
Net Farm Income w/o Appreciation	\$408	\$1.85	-\$101	-\$0.46	-125%

Table 50.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

33 Farms Less Than 225 Cows, New York State, 2018, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³⁴	(12)	(12)	(12)	(11)	(11)	(14)	(14)
6.3	210	5,128,728	26,152	4.1	21.8	52.7	1,080,354
4.6	161	3,564,773	23,460	3.1	19.6	38.7	875,289
3.5	123	2,596,073	21,619	2.5	18.1	32.6	733,349
2.6	81	1,546,700	18,398	2.0	14.7	27.9	537,410
1.9	52	864,428	14,440	1.2	7.2	21.6	355,390

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$716	\$4.05	25	\$584	\$1,599	\$911	\$5.40	\$0
\$1,080	\$5.44	31	\$847	\$1,931	\$1,295	\$6.62	\$18,205
\$1,198	\$5.97	35	\$949	\$2,109	\$1,465	\$7.35	\$32,348
\$1,415	\$6.54	38	\$1,096	\$2,431	\$1,699	\$7.73	\$37,584
\$1,713	\$7.11	43	\$1,681	\$3,229	\$2,064	\$8.33	\$56,899

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,528	\$18.86	\$13.34	\$20.17	-0.8	\$57,120	-\$3,311	\$90,202
\$4,075	\$17.64	\$14.74	\$22.03	-3.4	\$30,188	-\$19,282	\$9,918
\$3,743	\$16.94	\$15.38	\$23.73	-4.4	\$4,800	-\$40,135	-\$35,109
\$3,123	\$16.36	\$16.02	\$26.74	-7.2	-\$27,558	-\$73,415	-\$82,399
\$2,325	\$15.56	\$20.13	\$37.28	-13.7	-\$91,738	-\$126,910	-\$184,035

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$9,081	\$1,505	0.49	0.75	3.42	\$25	99	59
\$11,143	\$2,270	0.39	0.84	0.96	\$247	93	35
\$12,382	\$2,850	0.31	0.88	0.36	\$434	76	22
\$16,052	\$3,800	0.23	0.92	0.02	\$726	67	12
\$22,496	\$6,056	0.14	1.16	-3.81	\$1,101	44	-16

³⁴ Page number of the participant's DFBS where the factor is located.

Table 51.

SELECTED PRODUCTION AND FINANCIAL FACTORS

29 Farms Between 225 and 599 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	256	364	469	502	550
Average Heifers	155	293	360	423	506
Acres per Cow	1.46	1.82	2.19	2.35	2.73
Number of Worker Equivalents	5.6	7.3	9.1	10.7	15.3
Number of Owner Operators	1.0	1.6	2.0	2.5	3.2
Rates of Production					
Milk Sold per Cow	28,253	26,636	25,624	24,340	19,262
Hay DM per Acre, Tons	4.7	3.8	3.4	3.0	2.1
Corn Silage per Acre, Tons	22.8	20.3	19.3	17.5	11.8
Percent Butterfat	4.1	4.0	3.9	3.8	3.7
Percent Protein	3.3	3.2	3.1	3.0	3.0
Cull Rate, Percent	18.3	29.8	32.7	38.0	45.2
Labor Efficiency					
Cows per Worker	66.8	52.8	47.5	41.8	32.0
Milk Sold per Worker	1,601,425	1,273,328	1,149,265	995,784	818,128
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.19	6.93	7.30	7.81	8.73
Labor & Machinery Costs per Cow	1,307	1,636	1,883	2,077	2,301
Hired Labor Cost per Cwt.	1.60	2.21	2.68	3.13	4.05
Hired Labor Costs per Worker Equivalent	30,752	38,140	41,179	44,411	50,728
Crop Input Costs per Acre	84	109	134	157	199
Machinery Costs per Acre	270	373	448	550	742
Operating cost of Producing Milk per Cwt.	13.59	14.57	15.53	16.65	18.24
Purch. Input Cost of Producing Milk per Cwt.	15.33	16.54	17.39	18.63	20.48
Total Cost of Producing Milk per Cwt.	17.47	19.36	20.54	22.16	23.65
Operating Expense Ratio	0.80	0.83	0.88	0.94	1.00
Capital Efficiency					
Farm Capital Per Cow	8,057	10,578	11,886	13,713	17,590
Machinery and Equipment per Cow	911	1,624	2,501	2,838	3,859
Real Estate per Cow	3,070	4,543	5,479	6,784	9,089
Asset Turnover Ratio	0.58	0.46	0.39	0.34	0.26
Working Capital as % of Tot. Oper. Expense	48	29	22	11	-19
Profitability					
Labor & Management Income per Operator	37,678	-32,520	-92,118	-165,730	-291,674
Rate Return on Equity Capital w/o Apprec.	2.61	-1.86	-3.91	-8.89	-18.55
Rate Return on All Capital w/o Apprec.	3.58	0.69	-1.59	-3.37	-7.02
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.09	0.29	0.38	0.51	0.69
Farm Debt per Cow	1,074	3,391	4,238	5,887	7,337
Debt Coverage Ratio	6.84	1.39	0.71	0.18	-0.45

Table 52.

RECEIPTS AND EXPENSES PER COW					
29 Farms Between 225 and 599 Cows, New York State, 2018					
Item	QUINTILE				
	1	2	3	4	5
Average Cows	256	364	469	502	550
Cwt. of Milk Sold	56,730	89,691	117,086	127,390	137,463
<u>Accrual Operating Receipts</u>					
Milk	4,895	4,589	4,332	4,051	3,303
Dairy cattle	521	319	227	175	24
Dairy calves	67	38	27	17	-30
Other livestock	54	6	0	0	-6
Crops	353	237	121	-11	-215
Miscellaneous receipts	364	169	120	95	36
Total Receipts	5,622	5,157	4,883	4,521	3,589
<u>Accrual Operating Expenses</u>					
Hired labor	370	511	664	766	1,084
Dairy grain & concentrates	1,019	1,373	1,493	1,626	1,787
Dairy roughage	0	4	23	75	260
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	8
Machinery hire/rent/lease	14	56	117	255	498
Machinery repair & farm vehicle exp.	109	169	213	247	335
Fuel	95	140	165	188	238
Replacement livestock	0	0	0	2	87
Breeding	22	49	62	72	86
Veterinary, medicine & hoof care	66	113	136	154	200
Milk marketing	179	222	277	376	456
Bedding	19	70	85	119	179
Milking supplies	28	52	81	104	167
Cattle lease	0	0	0	0	10
Custom boarding	0	0	0	0	103
rBst expense	0	0	0	0	1
Livestock professional fees	0	6	17	28	45
Other livestock expense	0	3	16	29	62
Fertilizer & lime	16	63	101	128	200
Seeds & plants	48	90	125	153	205
Spray & other crop expenses	9	31	56	90	132
Crop professional fees	0	0	6	14	42
Land, building, fence repair	10	25	43	56	96
Taxes	18	42	57	85	128
Real estate rent/lease	11	46	74	99	195
Insurance	33	47	53	71	89
Utilities	50	72	86	112	147
Interest	36	125	189	262	374
Other professional fees	4	12	23	32	41
Miscellaneous	5	12	18	28	59
Total Farm Operating Costs	3,276	4,217	4,370	4,765	5,165
Expansion livestock	0	0	0	0	91
Extraordinary expenses	0	0	0	0	2
Machinery depreciation	104	199	283	353	433
Building depreciation	93	175	209	264	349
Total farm expense	3,642	4,606	4,954	5,330	5,770
Net Farm Income	432	217	-28	-304	-750

Table 53.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

29 Farms Between 225 and 599 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	256	364	469	502	550
Cwt. of Milk Sold	56,730	89,691	117,086	127,390	137,463
<u>Accrual Operating Receipts</u>					
Milk	18.02	17.42	17.18	16.79	16.12
Dairy cattle	1.98	1.22	0.91	0.71	0.02
Dairy calves	0.28	0.16	0.11	0.07	-0.12
Other livestock	0.21	0.03	0.00	0.00	-0.03
Crops	1.54	0.91	0.48	-0.05	-0.85
Miscellaneous receipts	1.47	0.67	0.50	0.38	0.17
Total Receipts	21.17	19.69	18.88	18.41	17.75
<u>Accrual Operating Expenses</u>					
Hired labor	1.60	2.21	2.68	3.13	4.05
Dairy grain & concentrates	4.58	5.43	5.93	6.35	7.03
Dairy roughage	0.00	0.02	0.09	0.28	1.48
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.04
Machinery hire/rent/lease	0.06	0.23	0.46	1.04	2.14
Machinery repair & farm vehicle exp.	0.48	0.69	0.80	1.05	1.34
Fuel	0.41	0.56	0.67	0.75	0.99
Replacement livestock	0.00	0.00	0.00	0.01	0.36
Breeding	0.09	0.19	0.25	0.29	0.34
Veterinary, medicine & hoof care	0.31	0.46	0.54	0.59	0.76
Milk marketing	0.81	0.91	1.13	1.47	1.75
Bedding	0.09	0.26	0.37	0.49	0.68
Milking supplies	0.12	0.22	0.34	0.41	0.67
Cattle lease	0.00	0.00	0.00	0.00	0.03
Custom boarding	0.00	0.00	0.00	0.00	0.41
rBst expense	0.00	0.00	0.00	0.00	0.00
Livestock professional fees	0.00	0.02	0.07	0.11	0.18
Other livestock expense	0.00	0.01	0.07	0.13	0.23
Fertilizer & lime	0.06	0.25	0.40	0.54	0.84
Seeds & plants	0.21	0.40	0.50	0.57	0.81
Spray & other crop expenses	0.04	0.12	0.23	0.35	0.56
Crop professional fees	0.00	0.00	0.03	0.06	0.17
Land, building, fence repair	0.04	0.10	0.17	0.21	0.39
Taxes	0.08	0.17	0.24	0.35	0.49
Real estate rent/lease	0.04	0.18	0.29	0.39	0.90
Insurance	0.15	0.18	0.22	0.28	0.37
Utilities	0.22	0.29	0.34	0.47	0.58
Interest	0.14	0.57	0.72	0.99	1.71
Other professional fees	0.02	0.05	0.10	0.13	0.16
Miscellaneous	0.02	0.05	0.07	0.10	0.25
Total Farm Operating Costs	15.15	16.70	17.83	18.71	20.05
Expansion livestock	0.00	0.00	0.00	0.00	0.35
Extraordinary expenses	0.00	0.00	0.00	0.00	0.01
Machinery depreciation	0.45	0.79	1.17	1.40	1.62
Building depreciation	0.36	0.73	0.89	1.11	1.40
Total farm expense	16.93	18.72	19.74	21.06	22.03
Net Farm Income	1.62	0.89	-0.09	-1.44	-3.14

Table 54.

PROGRESS OF THE FARM BUSINESS27 Farms 225 to 599 Cows, New York State, 2017 & 2018, DFBS³⁵

SELECTED FACTORS	Average of 27 Farms		Percent
	2017	2018	Change
<i>Size of Business</i>			
Average number of cows	404	419	4%
Average number of heifers	333	339	2%
Milk sold, pounds	9,938,299	10,280,731	3%
Worker equivalent	9.2	9.2	0%
Total tillable acres	816	857	5%
<i>Rates of Production</i>			
Milk sold per cow, pounds	24,579	24,543	0%
Hay DM per acre, tons	3.2	3.40	6%
Corn silage per acre, tons	18.3	18.40	1%
<i>Labor Efficiency</i>			
Cows per worker	44.0	45.6	4%
Milk sold per worker, pounds	1,082,603	1,119,905	3%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.53	\$5.83	5%
Net milk income over purchased grain & conc. per cow	\$2,873	\$2,474	-14%
Dairy feed & crop expense per cwt. milk	\$6.98	\$7.27	4%
Labor and machinery costs per cow	\$1,773	\$1,781	0%
Hired labor costs per cwt. milk	\$2.51	\$2.60	4%
Hired labor costs per worker equivalent	\$36,978	\$39,538	7%
Operating cost of producing milk per cwt.	\$14.56	\$15.45	6%
Purchased input cost of producing milk per cwt.	\$16.60	\$17.42	5%
Total cost of producing milk per cwt.	\$19.63	\$20.36	4%
Net milk price	\$17.26	\$15.87	-8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,172	\$11,986	-2%
Machinery and equipment per cow	\$2,222	\$2,208	-1%
Asset turnover ratio	0.45	0.38	-16%
<i>Profitability</i>			
Net farm income without appreciation	\$182,513	-\$32,548	-118%
Net farm income without appreciation per cow	\$451	-\$78	-117%
Net farm income with appreciation	\$293,671	-\$103,694	-135%
Net farm income with appreciation per cow	\$726	-\$248	-134%
Labor & management income per operator/manager	\$4,470	-\$99,148	NA
Rate return on equity capital with appreciation	4.8%	-7.1%	-248%
Rate return on equity capital without appreciation	1.5%	-5.0%	-431%
Rate return on all capital with appreciation	4.6%	-3.2%	-170%
Rate return on all capital without appreciation	2.3%	-1.8%	-177%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$3,479,558	\$3,242,607	-7%
Debt to asset ratio	0.31	0.35	13%
Farm debt per cow	\$3,943	\$4,218	7%
Debt coverage ratio	1.58	0.69	-56%

³⁵ Farm participating both years

Table 55.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

27 Farms 225 to 599 Cows, New York State, 2017 & 2018, DFBS

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	404		419		4%
Cwt. of milk sold		99,383		102,807	3%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,531	\$18.43	\$4,196	\$17.10	-7%
Dairy cattle	\$353	\$1.44	\$223	\$0.91	-37%
Dairy calves	\$35	\$0.14	\$21	\$0.08	-43%
Other livestock	\$8	\$0.03	\$12	\$0.05	67%
Crops	\$142	\$0.58	\$73	\$0.30	-48%
Miscellaneous receipts	\$104	\$0.42	\$156	\$0.64	52%
Total Operating Receipts	\$5,172	\$21.04	\$4,681	\$19.07	-9%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$618	\$2.51	\$639	\$2.60	4%
Dairy grain & concentrate	\$1,359	\$5.53	\$1,430	\$5.83	5%
Dairy roughage	\$69	\$0.28	\$72	\$0.29	4%
Nondairy feed	\$1	\$0.01	\$0	\$0.00	-100%
Professional nutritional services	\$1	\$0.01	\$2	\$0.01	0%
Machine hire, rent & lease	\$192	\$0.78	\$183	\$0.74	-5%
Machine repair & vehicle expense	\$220	\$0.89	\$205	\$0.83	-7%
Fuel, oil & grease	\$135	\$0.55	\$163	\$0.66	20%
Replacement livestock	\$33	\$0.14	\$21	\$0.08	-43%
Breeding	\$57	\$0.23	\$57	\$0.23	0%
Veterinary & medicine	\$141	\$0.57	\$133	\$0.54	-5%
Milk marketing	\$289	\$1.18	\$300	\$1.22	3%
Bedding	\$92	\$0.38	\$90	\$0.37	-3%
Milking supplies	\$92	\$0.37	\$82	\$0.33	-11%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$7	\$0.03	\$10	\$0.04	33%
BST expense	\$6	\$0.03	\$0	\$0.00	-100%
Livestock professional fees	\$16	\$0.06	\$17	\$0.07	17%
Other livestock expense	\$31	\$0.12	\$22	\$0.09	-25%
Fertilizer & lime	\$96	\$0.39	\$93	\$0.38	-3%
Seeds & plants	\$117	\$0.47	\$117	\$0.48	2%
Spray & other crop expense	\$64	\$0.26	\$61	\$0.25	-4%
Crop professional fees	\$11	\$0.04	\$10	\$0.04	0%
Land, building & fence repair	\$51	\$0.21	\$44	\$0.18	-14%
Taxes	\$61	\$0.25	\$60	\$0.24	-4%
Real estate rent & lease	\$76	\$0.31	\$75	\$0.31	0%
Insurance	\$55	\$0.22	\$57	\$0.23	5%
Utilities	\$87	\$0.35	\$92	\$0.37	6%
Interest paid	\$156	\$0.63	\$186	\$0.76	21%
Other professional fees	\$22	\$0.09	\$23	\$0.09	0%
Miscellaneous	\$19	\$0.08	\$23	\$0.09	13%
Total Operating Expenses	\$4,174	\$16.98	\$4,267	\$17.38	2%
Expansion livestock	\$45	\$0.18	\$11	\$0.04	-78%
Extraordinary expenses	\$0	\$0.00	\$0	\$0.00	NA
Machinery depreciation	\$275	\$1.12	\$261	\$1.07	-4%
Real estate depreciation	\$227	\$0.92	\$220	\$0.90	-2%
Total Expenses	\$4,721	\$19.20	\$4,759	\$19.39	1%
Net Farm Income w/o Appreciation	\$451	\$1.84	-\$78	-\$0.32	-117%

Table 56.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

29 Farms 225 to 599 Cows, New York State, 2018, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³⁶	(12)	(12)	(12)	(11)	(11)	(14)	(14)
15.3	550	13,746,343	28,253	4.7	22.8	66.8	1,601,425
10.7	502	12,738,994	26,636	3.8	20.3	52.8	1,273,328
9.1	469	11,708,596	25,624	3.4	19.3	47.5	1,149,265
7.3	364	8,969,126	24,340	3.0	17.5	41.8	995,784
5.6	256	5,672,956	19,262	2.1	11.8	32.0	818,128

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,019	\$4.58	27	\$587	\$1,307	\$1,368	\$6.19	\$30,752
\$1,373	\$5.43	32	\$807	\$1,636	\$1,722	\$6.93	\$38,140
\$1,493	\$5.93	35	\$933	\$1,883	\$1,815	\$7.30	\$41,179
\$1,626	\$6.35	38	\$1,088	\$2,077	\$1,960	\$7.81	\$44,411
\$1,787	\$7.03	41	\$1,319	\$2,301	\$2,237	\$8.73	\$50,728

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,895	\$18.02	\$13.59	\$17.47	3.6	\$197,199	\$37,678	\$119,534
\$4,589	\$17.42	\$14.57	\$19.36	0.7	\$92,988	-\$32,520	-\$22,825
\$4,332	\$17.18	\$15.53	\$20.54	-1.6	-\$12,585	-\$92,118	-\$137,168
\$4,051	\$16.79	\$16.65	\$22.16	-3.4	-\$110,067	-\$165,730	-\$329,768
\$3,303	\$16.12	\$18.24	\$23.65	-7.0	-\$355,577	-\$291,674	-\$631,920

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,057	\$911	0.58	0.80	6.84	\$83	94	48
\$10,578	\$1,624	0.46	0.83	1.39	\$253	73	29
\$11,886	\$2,501	0.39	0.88	0.71	\$498	64	22
\$13,713	\$2,838	0.34	0.94	0.18	\$759	52	11
\$17,590	\$3,859	0.26	1.00	-0.45	\$1,027	33	-19

³⁶ Page number of the participant's DFBS where the factor is located.

Table 57.

SELECTED PRODUCTION AND FINANCIAL FACTORS

28 Farms Between 600 and 949 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	629	702	788	838	923
Average Heifers	519	607	694	767	920
Acres per Cow	1.22	2.06	2.23	2.39	3.04
Number of Worker Equivalents	11.7	14.8	16.3	18.8	21.7
Number of Owner Operators	1.4	2.0	2.4	3.1	4.6
Rates of Production					
Milk Sold per Cow	28,830	26,574	25,462	24,152	19,597
Hay DM per Acre, Tons	3.9	3.4	2.9	2.4	1.3
Corn Silage per Acre, Tons	23.9	21.7	19.3	17.4	9.5
Percent Butterfat	4.5	4.0	3.9	3.8	3.1
Percent Protein	3.4	3.1	3.1	3.0	2.5
Cull Rate, Percent	22.2	33.7	37.8	40.6	51.8
Labor Efficiency					
Cows per Worker	63.2	52.4	48.5	43.2	37.2
Milk Sold per Worker	1,536,772	1,325,534	1,236,307	1,054,516	850,684
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.25	7.19	7.58	7.94	8.99
Labor & Machinery Costs per Cow	1,225	1,568	1,750	1,902	2,248
Hired Labor Cost per Cwt.	2.02	2.49	3.02	3.43	4.25
Hired Labor Costs per Worker Equivalent	36,284	38,906	41,375	44,453	47,674
Crop Input Costs per Acre	97	119	133	173	238
Machinery Costs per Acre	199	320	404	462	628
Operating cost of Producing Milk per Cwt.	13.21	14.96	15.73	16.32	19.57
Purch. Input Cost of Producing Milk per Cwt.	15.05	16.51	17.34	17.88	20.94
Total Cost of Producing Milk per Cwt.	17.57	19.09	20.05	20.55	23.85
Operating Expense Ratio	0.80	0.84	0.88	0.91	1.02
Capital Efficiency					
Farm Capital Per Cow	8,049	11,426	12,449	13,700	15,689
Machinery and Equipment per Cow	868	1,530	2,060	2,439	3,404
Real Estate per Cow	3,196	4,636	5,594	6,818	8,502
Asset Turnover Ratio	0.64	0.46	0.40	0.37	0.27
Working Capital as % of Tot. Oper. Expense	49	22	16	9	-17
Profitability					
Labor & Management Income per Operator	33,187	-52,138	-87,236	-153,300	-376,589
Rate Return on Equity Capital w/o Apprec.	2.86	0.59	-1.91	-4.99	-13.22
Rate Return on All Capital w/o Apprec.	4.11	1.58	0.17	-1.07	-4.85
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.10	0.28	0.37	0.47	0.70
Farm Debt per Cow	1,198	2,989	4,722	5,468	7,011
Debt Coverage Ratio	18.26	0.94	0.70	0.43	-0.22

Table 58.

RECEIPTS AND EXPENSES PER COW					
28 Farms Between 600 and 949 Cows, New York State,					
Item	2018				
	QUINTILE				
	1	2	3	4	5
Average Cows	627	702	788	838	923
Cwt. of Milk Sold	138,646	176,153	195,343	214,094	239,085
<u>Accrual Operating Receipts</u>					
Milk	5,084	4,591	4,351	4,109	3,580
Dairy cattle	533	353	279	244	122
Dairy calves	48	31	23	7	-52
Other livestock	289	13	0	0	0
Crops	357	186	86	-25	-240
Miscellaneous receipts	595	239	167	125	52
Total Receipts	5,953	5,358	5,010	4,654	4,003
<u>Accrual Operating Expenses</u>					
Hired labor	497	599	753	858	997
Dairy grain & concentrates	1,038	1,349	1,563	1,674	1,920
Dairy roughage	0	3	25	63	181
Nondairy feed	0	0	0	0	1
Professional nutritional services	0	0	0	0	6
Machinery hire/rent/lease	41	105	143	209	308
Machinery repair & farm vehicle exp.	105	164	207	245	356
Fuel	84	129	154	182	224
Replacement livestock	0	0	0	0	8
Breeding	19	39	52	68	120
Veterinary, medicine & hoof care	85	121	148	169	218
Milk marketing	174	231	296	349	422
Bedding	32	74	105	138	169
Milking supplies	49	72	90	104	140
Cattle lease	0	0	0	0	7
Custom boarding	0	0	2	89	404
rBst expense	0	0	0	0	2
Livestock professional fees	2	10	16	25	48
Other livestock expense	0	2	16	37	79
Fertilizer & lime	39	74	119	163	281
Seeds & plants	57	95	115	145	186
Spray & other crop expenses	21	52	63	74	103
Crop professional fees	0	1	7	11	42
Land, building, fence repair	23	35	47	76	135
Taxes	25	50	79	101	133
Real estate rent/lease	19	50	74	117	215
Insurance	29	40	45	52	70
Utilities	53	72	93	114	148
Interest	39	149	218	259	326
Other professional fees	9	15	21	28	41
Miscellaneous	5	19	30	35	57
Total Farm Operating Costs	3,660	4,255	4,526	4,882	5,480
Expansion livestock	0	0	0	1	91
Extraordinary expenses	0	0	0	0	19
Machinery depreciation	45	155	249	321	399
Building depreciation	72	140	172	201	265
Total farm expense	3,981	4,635	5,011	5,319	5,917
Net Farm Income	512	263	115	-104	-554

Table 59.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

28 Farms Between 600 and 949 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	627	702	788	838	923
Cwt. of Milk Sold	138,646	176,153	195,343	214,094	239,085
<u>Accrual Operating Receipts</u>					
Milk	19.57	17.63	17.16	16.93	16.54
Dairy cattle	2.01	1.46	1.20	0.97	0.55
Dairy calves	0.21	0.12	0.09	0.02	-0.20
Other livestock	1.45	0.05	0.00	0.00	0.00
Crops	1.42	0.76	0.35	-0.12	-1.02
Miscellaneous receipts	2.51	0.93	0.73	0.51	0.21
Total Receipts	23.50	21.48	19.75	18.90	17.87
<u>Accrual Operating Expenses</u>					
Hired labor	2.02	2.49	3.02	3.43	4.25
Dairy grain & concentrates	4.77	5.63	6.25	6.50	7.09
Dairy roughage	0.00	0.02	0.10	0.23	0.78
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.02
Machinery hire/rent/lease	0.16	0.41	0.60	0.84	1.33
Machinery repair & farm vehicle exp.	0.42	0.71	0.83	1.06	1.38
Fuel	0.34	0.50	0.62	0.74	0.96
Replacement livestock	0.00	0.00	0.00	0.00	0.03
Breeding	0.08	0.15	0.21	0.27	0.50
Veterinary, medicine & hoof care	0.36	0.47	0.59	0.72	0.91
Milk marketing	0.74	0.98	1.22	1.39	1.64
Bedding	0.15	0.29	0.40	0.54	0.71
Milking supplies	0.21	0.27	0.35	0.44	0.60
Cattle lease	0.00	0.00	0.00	0.00	0.03
Custom boarding	0.00	0.00	0.02	0.36	1.55
rBst expense	0.00	0.00	0.00	0.00	0.01
Livestock professional fees	0.01	0.05	0.06	0.10	0.18
Other livestock expense	0.00	0.01	0.07	0.15	0.31
Fertilizer & lime	0.14	0.31	0.49	0.68	1.31
Seeds & plants	0.23	0.38	0.45	0.61	0.81
Spray & other crop expenses	0.08	0.20	0.24	0.30	0.46
Crop professional fees	0.00	0.00	0.03	0.05	0.16
Land, building, fence repair	0.10	0.14	0.19	0.31	0.52
Taxes	0.10	0.20	0.32	0.42	0.61
Real estate rent/lease	0.08	0.21	0.29	0.47	0.87
Insurance	0.12	0.16	0.18	0.22	0.30
Utilities	0.24	0.30	0.37	0.43	0.60
Interest	0.15	0.59	0.87	1.16	1.44
Other professional fees	0.04	0.07	0.09	0.11	0.16
Miscellaneous	0.02	0.08	0.12	0.14	0.22
Total Farm Operating Costs	15.68	17.44	18.54	19.36	21.74
Expansion livestock	0.00	0.00	0.00	0.00	0.33
Extraordinary expenses	0.00	0.00	0.00	0.00	0.08
Machinery depreciation	0.20	0.61	0.97	1.29	1.64
Building depreciation	0.31	0.56	0.69	0.81	1.09
Total farm expense	17.34	18.95	20.05	21.27	23.46
Net Farm Income	1.97	1.18	0.47	-0.44	-2.27

Table 60.

PROGRESS OF THE FARM BUSINESS27 Farms 600 to 949 Cows, New York State, 2017 & 2018, DFBS³⁷

SELECTED FACTORS	Average of 27 Farms		Percent
	2017	2018	Change
<i>Size of Business</i>			
Average number of cows	753	773	3%
Average number of heifers	657	688	5%
Milk sold, pounds	18,546,637	18,956,988	2%
Worker equivalent	16.2	16.4	1%
Total tillable acres	1,642	1,655	1%
<i>Rates of Production</i>			
Milk sold per cow, pounds	24,623	24,532	0%
Hay DM per acre, tons	3.2	2.70	-16%
Corn silage per acre, tons	16.7	19.10	14%
<i>Labor Efficiency</i>			
Cows per worker	46.5	47.1	1%
Milk sold per worker, pounds	1,144,148	1,155,914	1%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.90	\$6.02	2%
Net milk income over purchased grain & conc. per cow	\$2,844	\$2,488	-13%
Dairy feed & crop expense per cwt. milk	\$7.48	\$7.52	1%
Labor and machinery costs per cow	\$1,753	\$1,705	-3%
Hired labor costs per cwt. milk	\$2.84	\$2.92	3%
Hired labor costs per worker equivalent	\$39,667	\$41,331	4%
Operating cost of producing milk per cwt.	\$15.52	\$15.74	1%
Purchased input cost of producing milk per cwt.	\$17.20	\$17.35	1%
Total cost of producing milk per cwt.	\$19.82	\$19.97	1%
Net milk price	\$17.47	\$16.22	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$12,143	\$11,966	-1%
Machinery and equipment per cow	\$1,968	\$1,997	1%
Asset turnover ratio	0.45	0.39	-13%
<i>Profitability</i>			
Net farm income without appreciation	\$256,217	\$2,043	-99%
Net farm income without appreciation per cow	\$340	\$3	-99%
Net farm income with appreciation	\$405,593	-\$133,030	-133%
Net farm income with appreciation per cow	\$538	-\$172	-132%
Labor & management income per operator/manager	-\$18,751	-\$113,891	-507%
Rate return on equity capital with appreciation	3.7%	-5.4%	-246%
Rate return on equity capital without appreciation	1.3%	-3.1%	-345%
Rate return on all capital with appreciation	3.8%	-1.9%	-150%
Rate return on all capital without appreciation	2.2%	-1.0%	-146%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$6,174,424	\$5,916,259	-4%
Debt to asset ratio	0.34	0.35	3%
Farm debt per cow	\$4,157	\$4,118	-1%
Debt coverage ratio	1.21	0.6	-50%

³⁷ Farm participating both years

Table 61.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

27 Farms 600 to 949 Cows, New York State, 2017 & 2018, DFBS

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	753		773		3%
Cwt. of milk sold		185,466		189,570	2%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,576	\$18.59	\$4,259	\$17.36	-7%
Dairy cattle	\$359	\$1.46	\$293	\$1.20	-18%
Dairy calves	\$65	\$0.26	\$10	\$0.04	-85%
Other livestock	\$39	\$0.16	\$60	\$0.25	56%
Crops	\$85	\$0.34	\$56	\$0.23	-32%
Miscellaneous receipts	<u>\$178</u>	<u>\$0.72</u>	<u>\$217</u>	<u>\$0.88</u>	22%
Total Operating Receipts	\$5,302	\$21.53	\$4,895	\$19.95	-7%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$699	\$2.84	\$717	\$2.92	3%
Dairy grain & concentrate	\$1,453	\$5.90	\$1,476	\$6.02	2%
Dairy roughage	\$67	\$0.27	\$48	\$0.19	-30%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$1	\$0.01	\$0	\$0.00	-100%
Machine hire, rent & lease	\$190	\$0.77	\$154	\$0.63	-18%
Machine repair & vehicle expense	\$238	\$0.97	\$206	\$0.84	-13%
Fuel, oil & grease	\$129	\$0.52	\$153	\$0.62	19%
Replacement livestock	\$5	\$0.02	\$1	\$0.01	-50%
Breeding	\$58	\$0.24	\$57	\$0.23	-4%
Veterinary & medicine	\$172	\$0.70	\$146	\$0.60	-14%
Milk marketing	\$274	\$1.11	\$282	\$1.15	4%
Bedding	\$105	\$0.42	\$97	\$0.40	-5%
Milking supplies	\$89	\$0.36	\$89	\$0.36	0%
Cattle lease	\$3	\$0.01	\$1	\$0.01	0%
Custom boarding	\$113	\$0.46	\$89	\$0.36	-22%
BST expense	\$7	\$0.03	\$0	\$0.00	-100%
Livestock professional fees	\$20	\$0.08	\$18	\$0.07	-13%
Other livestock expense	\$17	\$0.07	\$25	\$0.10	43%
Fertilizer & lime	\$108	\$0.44	\$132	\$0.54	23%
Seeds & plants	\$132	\$0.54	\$119	\$0.48	-11%
Spray & other crop expense	\$69	\$0.28	\$60	\$0.25	-11%
Crop professional fees	\$13	\$0.05	\$9	\$0.04	-20%
Land, building & fence repair	\$64	\$0.26	\$54	\$0.22	-15%
Taxes	\$68	\$0.28	\$72	\$0.29	4%
Real estate rent & lease	\$88	\$0.36	\$91	\$0.37	3%
Insurance	\$46	\$0.19	\$45	\$0.18	-5%
Utilities	\$90	\$0.37	\$94	\$0.38	3%
Interest paid	\$160	\$0.65	\$189	\$0.77	18%
Other professional fees	\$27	\$0.11	\$22	\$0.09	-18%
Miscellaneous	<u>\$27</u>	<u>\$0.11</u>	<u>\$27</u>	<u>\$0.11</u>	0%
Total Operating Expenses	\$4,534	\$18.41	\$4,477	\$18.25	-1%
Expansion livestock	\$12	\$0.05	\$18	\$0.08	60%
Extraordinary expenses	\$0	\$0.00	\$4	\$0.01	NA
Machinery depreciation	\$254	\$1.03	\$226	\$0.92	-11%
Real estate depreciation	<u>\$161</u>	<u>\$0.65</u>	<u>\$167</u>	<u>\$0.68</u>	5%
Total Expenses	\$4,961	\$20.14	\$4,892	\$19.94	-1%
Net Farm Income w/o Appreciation	\$340	\$1.38	\$3	\$0.01	-99%

Table 62.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

28 Farms 600 to 949 Cows, New York State, 2018, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ³⁸	(12)	(12)	(12)	(11)	(11)	(14)	(14)
21.7	923	23,908,493	28,830	3.9	23.9	63.2	1,536,772
18.8	838	21,409,409	26,574	3.4	21.7	52.4	1,325,534
16.3	788	19,534,345	25,462	2.9	19.3	48.5	1,236,307
14.8	702	17,615,340	24,152	2.4	17.4	43.2	1,054,516
11.7	629	13,864,570	19,597	1.3	9.5	37.2	850,684

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,038	\$4.77	28	\$500	\$1,225	\$1,383	\$6.25	\$36,284
\$1,349	\$5.63	32	\$725	\$1,568	\$1,707	\$7.19	\$38,906
\$1,563	\$6.25	35	\$870	\$1,750	\$1,909	\$7.58	\$41,375
\$1,674	\$6.50	37	\$986	\$1,902	\$2,060	\$7.94	\$44,453
\$1,920	\$7.09	41	\$1,199	\$2,248	\$2,327	\$8.99	\$47,674

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on A Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$5,084	\$19.57	\$13.21	\$17.57	4.1	\$375,863	\$33,187	\$361,057
\$4,591	\$17.63	\$14.96	\$19.09	1.6	\$205,936	-\$52,138	-\$85,724
\$4,351	\$17.16	\$15.73	\$20.05	0.2	\$91,617	-\$87,236	-\$214,042
\$4,109	\$16.93	\$16.32	\$20.55	-1.1	-\$80,834	-\$153,300	-\$356,488
\$3,580	\$16.54	\$19.57	\$23.85	-4.8	-\$428,251	-\$376,589	-\$926,407

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,049	\$868	0.64	0.80	18.26	\$135	92	49
\$11,426	\$1,530	0.46	0.84	0.94	\$370	75	22
\$12,449	\$2,060	0.40	0.88	0.70	\$681	66	16
\$13,700	\$2,439	0.37	0.91	0.43	\$867	57	9
\$15,689	\$3,404	0.27	1.02	-0.22	\$1,023	33	-17

³⁸ Page number of the participant's DFBS where the factor is located.

Table 63.

SELECTED PRODUCTION AND FINANCIAL FACTORS 30 Farms Between 950 and 1,349 Cows, New York State, 2018					
Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	966	1,042	1,109	1,202	1,311
Average Heifers	779	870	958	1,038	1,144
Acres per Cow	0.61	1.47	1.80	2.01	2.63
Number of Worker Equivalents	17.9	21.5	23.8	25.2	27.7
Number of Owner Operators	1.0	1.4	2.0	2.7	4.0
Rates of Production					
Milk Sold per Cow	28,258	27,600	26,869	26,059	25,112
Hay DM per Acre, Tons	4.5	3.8	3.3	2.8	1.1
Corn Silage per Acre, Tons	23.5	21.0	19.3	17.5	8.0
Percent Butterfat	4.1	4.0	3.9	3.8	3.8
Percent Protein	3.2	3.1	3.1	3.1	3.0
Cull Rate, Percent	21.0	30.0	33.0	34.8	39.7
Labor Efficiency					
Cows per Worker	62.8	52.0	47.0	44.8	40.7
Milk Sold per Worker	1,678,749	1,419,508	1,264,032	1,163,562	1,094,106
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.10	6.81	7.46	7.95	8.70
Labor & Machinery Costs per Cow	1,261	1,620	1,784	1,887	1,992
Hired Labor Cost per Cwt.	2.19	2.73	3.05	3.40	3.80
Hired Labor Costs per Worker Equivalent	36,723	41,087	43,997	45,956	51,590
Crop Input Costs per Acre	66	116	145	165	198
Machinery Costs per Acre	207	408	457	507	654
Operating cost of Producing Milk per Cwt.	13.79	14.62	15.18	16.05	17.43
Purch. Input Cost of Producing Milk per Cwt.	15.34	16.47	16.88	17.33	18.87
Total Cost of Producing Milk per Cwt.	17.09	18.23	18.93	19.45	20.70
Operating Expense Ratio	0.80	0.83	0.85	0.89	0.95
Capital Efficiency					
Farm Capital Per Cow	7,762	9,800	11,349	12,538	15,376
Machinery and Equipment per Cow	707	1,378	1,858	2,214	2,646
Real Estate per Cow	2,730	3,947	4,933	6,067	8,341
Asset Turnover Ratio	0.70	0.52	0.46	0.40	0.33
Working Capital as % of Tot. Oper. Expense	48	24	14	5	-11
Profitability					
Labor & Management Income per Operator	213,842	-55,833	-122,051	-197,345	-481,757
Rate Return on Equity Capital w/o Apprec.	7.20	1.28	-1.43	-4.00	-10.80
Rate Return on All Capital w/o Apprec.	5.65	2.67	0.98	-0.23	-2.83
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.14	0.33	0.43	0.50	0.69
Farm Debt per Cow	1,531	3,602	4,744	5,556	6,878
Debt Coverage Ratio	13.94	1.14	0.74	0.46	0.00

Table 64.

RECEIPTS AND EXPENSES PER COW

30 Farms Between 950 and 1,349 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	966	1,042	1,109	1,202	1,311
Cwt. of Milk Sold	257,630	276,556	298,393	322,984	351,213
<u>Accrual Operating Receipts</u>					
Milk	4,968	4,770	4,629	4,502	4,359
Dairy cattle	525	349	285	231	170
Dairy calves	61	36	26	17	-3
Other livestock	104	35	3	0	-3
Crops	337	174	51	-20	-93
Miscellaneous receipts	325	183	149	121	64
Total Receipts	5,874	5,424	5,184	5,073	4,796
<u>Accrual Operating Expenses</u>					
Hired labor	590	721	822	897	1,030
Dairy grain & concentrates	1,276	1,483	1,605	1,713	1,831
Dairy roughage	0	10	30	75	584
Nondairy feed	0	0	0	0	2
Professional nutritional services	0	0	0	0	7
Machinery hire/rent/lease	11	43	86	131	291
Machinery repair & farm vehicle exp.	123	190	249	276	318
Fuel	90	137	161	182	222
Replacement livestock	0	0	0	0	10
Breeding	22	34	42	50	81
Veterinary, medicine & hoof care	117	135	156	178	217
Milk marketing	212	238	307	363	460
Bedding	23	65	91	113	170
Milking supplies	47	67	82	97	115
Cattle lease	0	0	0	0	2
Custom boarding	0	0	2	85	383
rBst expense	0	0	0	0	0
Livestock professional fees	3	14	16	18	27
Other livestock expense	0	1	8	24	63
Fertilizer & lime	23	54	84	128	226
Seeds & plants	25	77	100	121	174
Spray & other crop expenses	3	28	45	64	99
Crop professional fees	0	0	5	13	32
Land, building, fence repair	25	50	62	77	112
Taxes	23	41	49	68	96
Real estate rent/lease	21	46	78	114	190
Insurance	19	32	42	58	71
Utilities	57	87	94	114	150
Interest	52	162	211	254	338
Other professional fees	7	13	19	31	59
Miscellaneous	5	15	24	33	51
Total Farm Operating Costs	4,100	4,425	4,717	5,005	5,420
Expansion livestock	0	0	0	0	88
Extraordinary expenses	0	0	0	0	15
Machinery depreciation	95	160	212	268	377
Building depreciation	74	148	194	237	301
Total farm expense	4,547	4,924	5,190	5,392	5,785
Net Farm Income	556	254	99	-29	-368

Table 65.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

30 Farms Between 950 and 1,349 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	966	1,042	1,109	1,202	1,311
Cwt. of Milk Sold	257,630	276,556	298,393	322,984	351,213
<u>Accrual Operating Receipts</u>					
Milk	18.36	17.62	17.37	17.03	16.41
Dairy cattle	1.93	1.33	1.07	0.87	0.63
Dairy calves	0.23	0.14	0.10	0.07	-0.01
Other livestock	0.37	0.13	0.01	0.00	-0.01
Crops	1.26	0.64	0.19	-0.08	-0.35
Miscellaneous receipts	1.24	0.67	0.56	0.45	0.24
Total Receipts	21.82	20.09	19.22	18.89	18.42
<u>Accrual Operating Expenses</u>					
Hired labor	2.19	2.73	3.05	3.40	3.80
Dairy grain & concentrates	4.92	5.55	5.84	6.37	6.84
Dairy roughage	0.00	0.04	0.11	0.28	2.20
Nondairy feed	0.00	0.00	0.00	0.00	0.01
Professional nutritional services	0.00	0.00	0.00	0.00	0.03
Machinery hire/rent/lease	0.04	0.16	0.32	0.48	1.09
Machinery repair & farm vehicle exp.	0.46	0.70	0.92	1.05	1.18
Fuel	0.34	0.50	0.61	0.69	0.81
Replacement livestock	0.00	0.00	0.00	0.00	0.04
Breeding	0.08	0.13	0.16	0.19	0.30
Veterinary, medicine & hoof care	0.44	0.51	0.58	0.66	0.81
Milk marketing	0.82	0.89	1.16	1.30	1.73
Bedding	0.09	0.24	0.34	0.43	0.63
Milking supplies	0.18	0.25	0.30	0.36	0.44
Cattle lease	0.00	0.00	0.00	0.00	0.01
Custom boarding	0.00	0.00	0.01	0.30	1.42
rBst expense	0.00	0.00	0.00	0.00	0.00
Livestock professional fees	0.01	0.05	0.06	0.07	0.10
Other livestock expense	0.00	0.00	0.03	0.09	0.23
Fertilizer & lime	0.09	0.20	0.31	0.48	0.84
Seeds & plants	0.10	0.29	0.39	0.44	0.65
Spray & other crop expenses	0.01	0.11	0.17	0.24	0.38
Crop professional fees	0.00	0.00	0.02	0.05	0.12
Land, building, fence repair	0.10	0.19	0.23	0.29	0.41
Taxes	0.09	0.15	0.19	0.25	0.36
Real estate rent/lease	0.08	0.17	0.30	0.43	0.72
Insurance	0.07	0.12	0.16	0.22	0.27
Utilities	0.22	0.32	0.36	0.42	0.55
Interest	0.20	0.61	0.77	0.94	1.31
Other professional fees	0.03	0.05	0.07	0.12	0.22
Miscellaneous	0.02	0.06	0.09	0.13	0.19
Total Farm Operating Costs	15.63	16.57	17.62	18.64	19.92
Expansion livestock	0.00	0.00	0.00	0.00	0.33
Extraordinary expenses	0.00	0.00	0.00	0.00	0.06
Machinery depreciation	0.34	0.61	0.79	1.00	1.43
Building depreciation	0.28	0.54	0.72	0.91	1.12
Total farm expense	17.34	18.56	19.26	19.99	21.38
Net Farm Income	2.05	0.93	0.38	-0.11	-1.36

Table 66.

PROGRESS OF THE FARM BUSINESS29 Farms 950 to 1,349 Cows, New York State, 2017 & 2018, DFBS³⁹

SELECTED FACTORS	Average of 29 Farms		Percent
	2017	2018	Change
<i>Size of Business</i>			
Average number of cows	1,074	1,130	5%
Average number of heifers	938	962	3%
Milk sold, pounds	29,034,763	30,289,574	4%
Worker equivalent	23.1	23.6	2%
Total tillable acres	1,940	1,974	2%
<i>Rates of Production</i>			
Milk sold per cow, pounds	27,030	26,805	-1%
Hay DM per acre, tons	3.6	3.40	-6%
Corn silage per acre, tons	19	19.70	4%
<i>Labor Efficiency</i>			
Cows per worker	46.5	48.0	3%
Milk sold per worker, pounds	1,255,829	1,285,636	2%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.89	\$5.93	1%
Net milk income over purchased grain & conc. per cow	\$3,116	\$2,745	-12%
Dairy feed & crop expense per cwt. milk	\$7.50	\$7.38	-2%
Labor and machinery costs per cow	\$1,787	\$1,721	-4%
Hired labor costs per cwt. milk	\$3.10	\$3.07	-1%
Hired labor costs per worker equivalent	\$43,268	\$44,039	2%
Operating cost of producing milk per cwt.	\$15.44	\$15.41	0%
Purchased input cost of producing milk per cwt.	\$17.13	\$16.98	-1%
Total cost of producing milk per cwt.	\$19.12	\$18.91	-1%
Net milk price	\$17.42	\$16.17	-7%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,923	\$11,476	-4%
Machinery and equipment per cow	\$1,918	\$1,798	-6%
Asset turnover ratio	0.5	0.45	-10%
<i>Profitability</i>			
Net farm income without appreciation	\$417,413	\$116,224	-72%
Net farm income without appreciation per cow	\$389	\$103	-74%
Net farm income with appreciation	\$630,631	-\$3,305	-101%
Net farm income with appreciation per cow	\$587	-\$3	-101%
Labor & management income per operator/manager	\$7,037	-\$129,000	NA
Rate return on equity capital with appreciation	5.7%	-2.3%	-140%
Rate return on equity capital without appreciation	3.0%	-0.8%	-127%
Rate return on all capital with appreciation	5.0%	0.3%	-94%
Rate return on all capital without appreciation	3.4%	1.2%	-64%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$8,217,217	\$7,959,709	-3%
Debt to asset ratio	0.37	0.39	5%
Farm debt per cow	\$4,379	\$4,294	-2%
Debt coverage ratio	1.29	0.79	-39%

³⁹ Farm participating both years

Table 67.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

29 Farms 950 to 1,349 Cows, New York State, 2017 & 2018, DFBS

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,074		1,130		5%
Cwt. of milk sold		290,348		302,896	4%
ACCRUAL OPERATING RECEIPTS					
Milk	\$5,018	\$18.57	\$4,654	\$17.36	-7%
Dairy cattle	\$383	\$1.42	\$306	\$1.14	-20%
Dairy calves	\$52	\$0.19	\$28	\$0.10	-47%
Other livestock	\$11	\$0.04	\$28	\$0.11	175%
Crops	\$147	\$0.55	\$92	\$0.34	-38%
Miscellaneous receipts	<u>\$151</u>	<u>\$0.56</u>	<u>\$170</u>	<u>\$0.63</u>	13%
Total Operating Receipts	\$5,761	\$21.32	\$5,278	\$19.69	-8%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$837	\$3.10	\$824	\$3.07	-1%
Dairy grain & concentrate	\$1,591	\$5.89	\$1,589	\$5.93	1%
Dairy roughage	\$144	\$0.53	\$121	\$0.45	-15%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$3	\$0.01	\$1	\$0.01	0%
Machine hire, rent & lease	\$122	\$0.45	\$111	\$0.41	-9%
Machine repair & vehicle expense	\$255	\$0.94	\$232	\$0.87	-7%
Fuel, oil & grease	\$133	\$0.49	\$156	\$0.58	18%
Replacement livestock	\$7	\$0.02	\$1	\$0.01	-50%
Breeding	\$54	\$0.20	\$46	\$0.17	-15%
Veterinary & medicine	\$169	\$0.63	\$160	\$0.60	-5%
Milk marketing	\$309	\$1.14	\$319	\$1.19	4%
Bedding	\$102	\$0.38	\$93	\$0.35	-8%
Milking supplies	\$93	\$0.35	\$80	\$0.30	-14%
Cattle lease	\$0	\$0.00	\$0	\$0.00	NA
Custom boarding	\$108	\$0.40	\$94	\$0.35	-13%
BST expense	\$13	\$0.05	\$0	\$0.00	-100%
Livestock professional fees	\$17	\$0.06	\$16	\$0.06	0%
Other livestock expense	\$25	\$0.09	\$21	\$0.08	-11%
Fertilizer & lime	\$98	\$0.36	\$107	\$0.40	11%
Seeds & plants	\$126	\$0.46	\$102	\$0.38	-17%
Spray & other crop expense	\$58	\$0.22	\$49	\$0.18	-18%
Crop professional fees	\$12	\$0.04	\$10	\$0.04	0%
Land, building & fence repair	\$80	\$0.30	\$67	\$0.25	-17%
Taxes	\$58	\$0.21	\$56	\$0.21	0%
Real estate rent & lease	\$91	\$0.34	\$94	\$0.35	3%
Insurance	\$47	\$0.17	\$45	\$0.17	0%
Utilities	\$93	\$0.34	\$101	\$0.38	12%
Interest paid	\$178	\$0.66	\$198	\$0.74	12%
Other professional fees	\$28	\$0.10	\$27	\$0.10	0%
Miscellaneous	<u>\$33</u>	<u>\$0.12</u>	<u>\$25</u>	<u>\$0.09</u>	-25%
Total Operating Expenses	\$4,881	\$18.06	\$4,746	\$17.71	-2%
Expansion livestock	\$36	\$0.13	\$8	\$0.03	-77%
Extraordinary expenses	\$1	\$0.00	\$2	\$0.01	NA
Machinery depreciation	\$263	\$0.97	\$226	\$0.84	-13%
Real estate depreciation	<u>\$191</u>	<u>\$0.71</u>	<u>\$193</u>	<u>\$0.72</u>	1%
Total Expenses	\$5,372	\$19.87	\$5,175	\$19.31	-3%
Net Farm Income w/o Appreciation	\$389	\$1.44	\$103	\$0.38	-74%

Table 68.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

30 Farms 950 to 1,349 Cows, New York State, 2018, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ⁴⁰	(12)	(12)	(12)	(11)	(11)	(14)	(14)
27.7	1,311	35,121,292	28,258	4.5	23.5	62.8	1,678,749
25.2	1,202	32,298,438	27,600	3.8	21.0	52.0	1,419,508
23.8	1,109	29,839,312	26,869	3.3	19.3	47.0	1,264,032
21.5	1,042	27,655,641	26,059	2.8	17.5	44.8	1,163,562
17.9	966	25,762,982	25,112	1.1	8.0	40.7	1,094,106

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,276	\$4.92	29	\$557	\$1,261	\$1,624	\$6.10	\$36,723
\$1,483	\$5.55	32	\$720	\$1,620	\$1,842	\$6.81	\$41,087
\$1,605	\$5.84	34	\$838	\$1,784	\$1,971	\$7.46	\$43,997
\$1,713	\$6.37	37	\$917	\$1,887	\$2,151	\$7.95	\$45,956
\$1,831	\$6.84	39	\$1,029	\$1,992	\$2,320	\$8.70	\$51,590

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,968	\$18.36	\$13.79	\$17.09	5.7	\$634,933	\$213,842	\$452,369
\$4,770	\$17.62	\$14.62	\$18.23	2.7	\$291,272	-\$55,833	\$90,987
\$4,629	\$17.37	\$15.18	\$18.93	1.0	\$111,409	-\$122,051	-\$137,921
\$4,502	\$17.03	\$16.05	\$19.45	-0.2	-\$34,059	-\$197,345	-\$434,041
\$4,359	\$16.41	\$17.43	\$20.70	-2.8	-\$425,613	-\$481,757	-\$938,133

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$7,762	\$707	0.70	0.80	13.94	\$210	86	48
\$9,800	\$1,378	0.52	0.83	1.14	\$505	67	24
\$11,349	\$1,858	0.46	0.85	0.74	\$654	57	14
\$12,538	\$2,214	0.40	0.89	0.46	\$834	51	5
\$15,376	\$2,646	0.33	0.95	0.00	\$964	32	-11

⁴⁰ Page number of the participant's DFBS where the factor is located.

Table 69.

SELECTED PRODUCTION AND FINANCIAL FACTORS

arms Greater Than 1,350 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Size of Business					
Average Cows	1,379	1,501	1,771	2,306	3,550
Average Heifers	1,107	1,354	1,542	1,921	2,921
Acres per Cow	1.09	1.48	1.82	2.08	2.40
Number of Worker Equivalents	25.6	31.5	35.9	44.9	67.8
Number of Owner Operators	1.2	2.1	3.0	3.8	5.0
Rates of Production					
Milk Sold per Cow	28,131	27,118	26,561	25,361	23,608
Hay DM per Acre, Tons	4.8	3.9	3.6	2.9	1.9
Corn Silage per Acre, Tons	22.3	20.5	18.9	17.9	15.4
Percent Butterfat	4.1	3.9	3.9	3.8	3.7
Percent Protein	3.2	3.1	3.1	3.1	3.0
Cull Rate, Percent	18.6	29.0	33.3	38.3	42.0
Labor Efficiency					
Cows per Worker	64.6	54.7	50.7	46.9	42.5
Milk Sold per Worker	1,681,962	1,436,169	1,322,941	1,215,178	1,099,139
Cost Control					
Dairy Feed & Crop Expense per Cwt. Milk	6.13	6.57	6.98	7.47	8.10
Labor & Machinery Costs per Cow	1,288	1,580	1,657	1,789	1,985
Hired Labor Cost per Cwt.	2.15	2.68	3.12	3.44	3.89
Hired Labor Costs per Worker Equivalent	37,165	40,822	42,326	45,246	53,879
Crop Input Costs per Acre	98	132	157	173	206
Machinery Costs per Acre	359	404	457	517	668
Operating cost of Producing Milk per Cwt.	13.02	13.84	14.63	15.66	17.72
Purch. Input Cost of Producing Milk per Cwt.	14.61	15.63	16.32	17.21	19.28
Total Cost of Producing Milk per Cwt.	16.85	17.83	18.55	19.22	21.21
Operating Expense Ratio	0.77	0.80	0.84	0.88	0.98
Capital Efficiency					
Farm Capital Per Cow	8,606	9,928	11,290	13,227	16,552
Machinery and Equipment per Cow	904	1,379	1,628	1,941	2,646
Real Estate per Cow	3,408	4,260	5,233	6,928	8,385
Asset Turnover Ratio	0.57	0.50	0.45	0.39	0.32
Working Capital as % of Tot. Oper. Expense	77	28	20	13	-1
Profitability					
Labor & Management Income per Operator	242,053	-12,599	-108,455	-256,349	-880,594
Rate Return on Equity Capital w/o Apprec.	6.43	3.07	0.67	-1.46	-12.03
Rate Return on All Capital w/o Apprec.	5.96	3.52	2.12	0.72	-3.48
Financial Summary(based on market value, excluding deferred taxes)					
Debt to Asset Ratio	0.07	0.28	0.42	0.47	0.62
Farm Debt per Cow	712	3,236	4,443	5,011	6,430
Debt Coverage Ratio	15.57	1.81	1.21	0.71	-0.41

Table 70.

RECEIPTS AND EXPENSES PER COW

36 Farms Greater Than 1,350 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	1,379	1,501	1,771	2,306	3,550
Cwt. of Milk Sold	362,121	390,276	453,112	622,833	900,073
<u>Accrual Operating Receipts</u>					
Milk	4,907	4,692	4,542	4,359	3,986
Dairy cattle	601	395	301	247	149
Dairy calves	77	40	22	16	-10
Other livestock	60	7	0	0	-2
Crops	372	162	96	27	-98
Miscellaneous receipts	323	184	152	115	76
Total Receipts	5,752	5,347	5,154	4,946	4,538
<u>Accrual Operating Expenses</u>					
Hired labor	559	704	822	881	1,009
Dairy grain & concentrates	1,194	1,400	1,493	1,581	1,766
Dairy roughage	1	15	47	100	265
Nondairy feed	0	0	0	0	0
Professional nutritional services	0	0	0	0	7
Machinery hire/rent/lease	13	50	92	148	256
Machinery repair & farm vehicle exp.	126	194	215	260	337
Fuel	107	125	147	165	209
Replacement livestock	0	0	0	0	136
Breeding	26	43	53	64	103
Veterinary, medicine & hoof care	96	134	149	175	202
Milk marketing	193	244	297	350	462
Bedding	24	47	74	97	130
Milking supplies	42	59	75	95	153
Cattle lease	0	0	0	0	13
Custom boarding	0	0	7	79	300
rBst expense	0	0	0	0	0
Livestock professional fees	0	7	13	16	25
Other livestock expense	0	0	7	26	80
Fertilizer & lime	40	70	91	103	162
Seeds & plants	60	97	113	141	187
Spray & other crop expenses	14	33	54	73	110
Crop professional fees	0	0	0	4	17
Land, building, fence repair	29	47	61	81	122
Taxes	32	49	65	74	96
Real estate rent/lease	28	44	58	84	189
Insurance	21	31	42	55	71
Utilities	54	84	97	117	137
Interest	29	140	210	238	314
Other professional fees	9	18	27	37	53
Miscellaneous	9	14	19	27	46
Total Farm Operating Costs	3,794	4,236	4,593	4,816	5,120
Expansion livestock	0	0	0	11	203
Extraordinary expenses	0	0	0	0	16
Machinery depreciation	133	197	218	260	341
Building depreciation	125	160	192	240	291
Total farm expense	4,190	4,682	5,088	5,270	5,696
Net Farm Income	724	395	196	62	-450

Table 71.

RECEIPTS AND EXPENSES PER CWT. OF MILK SOLD

36 Farms Greater Than 1,350 Cows, New York State, 2018

Item	QUINTILE				
	1	2	3	4	5
Average Cows	1,379	1,501	1,771	2,306	3,550
Cwt. of Milk Sold	362,121	390,276	453,112	622,833	900,073
<u>Accrual Operating Receipts</u>					
Milk	18.20	17.59	17.17	16.82	16.28
Dairy cattle	2.41	1.45	1.16	0.96	0.57
Dairy calves	0.30	0.16	0.08	0.06	-0.04
Other livestock	0.24	0.03	0.00	0.00	-0.01
Crops	1.44	0.61	0.38	0.10	-0.39
Miscellaneous receipts	1.22	0.69	0.58	0.46	0.30
Total Receipts	21.51	20.52	19.65	18.89	18.06
<u>Accrual Operating Expenses</u>					
Hired labor	2.15	2.68	3.12	3.44	3.89
Dairy grain & concentrates	4.78	5.30	5.66	6.01	6.71
Dairy roughage	0.00	0.06	0.18	0.38	1.05
Nondairy feed	0.00	0.00	0.00	0.00	0.00
Professional nutritional services	0.00	0.00	0.00	0.00	0.03
Machinery hire/rent/lease	0.05	0.19	0.34	0.55	1.01
Machinery repair & farm vehicle exp.	0.50	0.73	0.81	1.03	1.28
Fuel	0.41	0.49	0.56	0.61	0.83
Replacement livestock	0.00	0.00	0.00	0.00	0.61
Breeding	0.10	0.16	0.20	0.24	0.41
Veterinary, medicine & hoof care	0.39	0.50	0.57	0.66	0.79
Milk marketing	0.75	0.92	1.20	1.33	1.70
Bedding	0.09	0.18	0.28	0.37	0.50
Milking supplies	0.16	0.22	0.29	0.37	0.57
Cattle lease	0.00	0.00	0.00	0.00	0.05
Custom boarding	0.00	0.00	0.03	0.31	1.15
rBst expense	0.00	0.00	0.00	0.00	0.00
Livestock professional fees	0.00	0.03	0.05	0.07	0.10
Other livestock expense	0.00	0.00	0.02	0.10	0.32
Fertilizer & lime	0.15	0.28	0.35	0.40	0.61
Seeds & plants	0.23	0.37	0.43	0.55	0.70
Spray & other crop expenses	0.06	0.12	0.21	0.27	0.43
Crop professional fees	0.00	0.00	0.00	0.01	0.07
Land, building, fence repair	0.12	0.18	0.23	0.31	0.47
Taxes	0.13	0.19	0.24	0.28	0.36
Real estate rent/lease	0.11	0.17	0.23	0.31	0.72
Insurance	0.08	0.12	0.16	0.21	0.27
Utilities	0.21	0.33	0.37	0.44	0.53
Interest	0.11	0.55	0.81	0.92	1.17
Other professional fees	0.04	0.07	0.11	0.14	0.20
Miscellaneous	0.03	0.06	0.07	0.10	0.17
Total Farm Operating Costs	15.15	16.35	17.09	17.66	20.30
Expansion livestock	0.00	0.00	0.00	0.04	0.78
Extraordinary expenses	0.00	0.00	0.00	0.00	0.06
Machinery depreciation	0.52	0.74	0.86	1.00	1.26
Building depreciation	0.50	0.63	0.75	0.89	1.06
Total farm expense	16.79	18.19	18.89	19.52	22.17
Net Farm Income	2.82	1.54	0.73	0.22	-1.81

Table 72.

PROGRESS OF THE FARM BUSINESS35 Farms Greater Than 1,350 Cows, New York State, 2017 & 2018, DFBS⁴¹

SELECTED FACTORS	Average of 35 Farms		Percent
	2017	2018	Change
<i>Size of Business</i>			
Average number of cows	1,911	2,096	10%
Average number of heifers	1,687	1,772	5%
Milk sold, pounds	50,233,519	54,632,192	9%
Worker equivalent	38.6	41.0	6%
Total tillable acres	3,472	3,591	3%
<i>Rates of Production</i>			
Milk sold per cow, pounds	26,285	26,063	-1%
Hay DM per acre, tons	3.4	3.30	-3%
Corn silage per acre, tons	18.3	18.90	3%
<i>Labor Efficiency</i>			
Cows per worker	49.5	51.1	3%
Milk sold per worker, pounds	1,301,049	1,332,168	2%
<i>Cost Control and Milk Price</i>			
Grain & concentrate per cwt. milk	\$5.57	\$5.66	2%
Net milk income over purchased grain & conc. per cow	\$3,130	\$2,712	-13%
Dairy feed & crop expense per cwt. milk	\$6.93	\$7.03	1%
Labor and machinery costs per cow	\$1,684	\$1,624	-4%
Hired labor costs per cwt. milk	\$3.03	\$3.03	0%
Hired labor costs per worker equivalent	\$43,174	\$44,046	2%
Operating cost of producing milk per cwt.	\$14.43	\$14.71	2%
Purchased input cost of producing milk per cwt.	\$16.10	\$16.31	1%
Total cost of producing milk per cwt.	\$18.23	\$18.34	1%
Net milk price	\$17.40	\$16.00	-8%
<i>Capital Efficiency (average for year)</i>			
Farm capital per cow	\$11,986	\$11,526	-4%
Machinery and equipment per cow	\$1,711	\$1,589	-7%
Asset turnover ratio	0.5	0.44	-12%
<i>Profitability</i>			
Net farm income without appreciation	\$1,158,646	\$473,204	-59%
Net farm income without appreciation per cow	\$606	\$226	-63%
Net farm income with appreciation	\$1,783,145	\$212,578	-88%
Net farm income with appreciation per cow	\$933	\$101	-89%
Labor & management income per operator/manager	\$127,208	-\$109,698	-186%
Rate return on equity capital with appreciation	9.5%	-0.6%	-106%
Rate return on equity capital without appreciation	5.6%	1.0%	-81%
Rate return on all capital with appreciation	7.8%	1.2%	-85%
Rate return on all capital without appreciation	5.1%	2.3%	-55%
<i>Financial Summary (based on market value, excluding deferred taxes)</i>			
Farm net worth, end year	\$16,211,440	\$15,953,488	-2%
Debt to asset ratio	0.32	0.34	6%
Farm debt per cow	\$3,859	\$3,900	1%
Debt coverage ratio	2.1	1.12	-47%

⁴¹ Farm participating both years

Table 73.

RECEIPTS & EXPENSES PER COW AND PER HUNDREDWEIGHT

35 Farms Greater Than 1,350 Cows, New York State, 2017 & 2018, DFBS

Item	2017		2018		% Change Per Cwt.
	Per Cow	Per Cwt.	Per Cow	Per Cwt.	
Average number of cows	1,911		2,096		10%
Cwt. of milk sold		502,335		546,322	9%
ACCRUAL OPERATING RECEIPTS					
Milk	\$4,839	\$18.41	\$4,476	\$17.17	-7%
Dairy cattle	\$424	\$1.61	\$340	\$1.31	-19%
Dairy calves	\$50	\$0.19	\$23	\$0.09	-53%
Other livestock	\$7	\$0.03	\$11	\$0.04	33%
Crops	\$135	\$0.51	\$130	\$0.50	-2%
Miscellaneous receipts	<u>\$152</u>	<u>\$0.58</u>	<u>\$163</u>	<u>\$0.62</u>	7%
Total Operating Receipts	\$5,608	\$21.33	\$5,142	\$19.73	-8%
ACCRUAL OPERATING EXPENSES					
Hired labor	\$796	\$3.03	\$789	\$3.03	0%
Dairy grain & concentrate	\$1,463	\$5.57	\$1,474	\$5.66	2%
Dairy roughage	\$81	\$0.31	\$95	\$0.36	16%
Nondairy feed	\$0	\$0.00	\$0	\$0.00	NA
Professional nutritional services	\$0	\$0.00	\$1	\$0.00	NA
Machine hire, rent & lease	\$113	\$0.43	\$110	\$0.42	-2%
Machine repair & vehicle expense	\$251	\$0.95	\$217	\$0.83	-13%
Fuel, oil & grease	\$134	\$0.51	\$150	\$0.57	12%
Replacement livestock	\$8	\$0.03	\$6	\$0.02	-33%
Breeding	\$57	\$0.22	\$56	\$0.21	-5%
Veterinary & medicine	\$165	\$0.63	\$151	\$0.58	-8%
Milk marketing	\$266	\$1.01	\$306	\$1.17	16%
Bedding	\$79	\$0.30	\$74	\$0.28	-7%
Milking supplies	\$88	\$0.34	\$82	\$0.32	-6%
Cattle lease	\$4	\$0.02	\$4	\$0.01	-50%
Custom boarding	\$106	\$0.40	\$78	\$0.30	-25%
BST expense	\$12	\$0.04	\$0	\$0.00	-100%
Livestock professional fees	\$15	\$0.06	\$12	\$0.05	-17%
Other livestock expense	\$28	\$0.11	\$19	\$0.07	-36%
Fertilizer & lime	\$98	\$0.37	\$91	\$0.35	-5%
Seeds & plants	\$116	\$0.44	\$112	\$0.43	-2%
Spray & other crop expense	\$58	\$0.22	\$55	\$0.21	-5%
Crop professional fees	\$6	\$0.02	\$4	\$0.02	0%
Land, building & fence repair	\$69	\$0.26	\$64	\$0.24	-8%
Taxes	\$63	\$0.24	\$60	\$0.23	-4%
Real estate rent & lease	\$69	\$0.26	\$75	\$0.29	12%
Insurance	\$41	\$0.16	\$40	\$0.15	-6%
Utilities	\$87	\$0.33	\$92	\$0.35	6%
Interest paid	\$151	\$0.58	\$182	\$0.70	21%
Other professional fees	\$25	\$0.10	\$28	\$0.11	10%
Miscellaneous	<u>\$27</u>	<u>\$0.10</u>	<u>\$22</u>	<u>\$0.08</u>	-20%
Total Operating Expenses	\$4,477	\$17.03	\$4,447	\$17.06	0%
Expansion livestock	\$84	\$0.32	\$54	\$0.21	-34%
Extraordinary expenses	\$8	\$0.03	\$3	\$0.01	-67%
Machinery depreciation	\$239	\$0.91	\$215	\$0.83	-9%
Real estate depreciation	<u>\$194</u>	<u>\$0.74</u>	<u>\$198</u>	<u>\$0.76</u>	3%
Total Expenses	\$5,002	\$19.03	\$4,917	\$18.87	-1%
Net Farm Income w/o Appreciation	\$606	\$2.31	\$226	\$0.87	-62%

Table 74.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

36 Farms Greater Than 1,350 Cows, New York State, 2018, DFBS

Size of Business			Rates of Production			Labor Efficiency	
Worker Equivalents	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
(14) ⁴²	(12)	(12)	(12)	(11)	(11)	(14)	(14)
67.8	3,550	90,007,320	28,131	4.8	22.3	64.6	1,681,962
44.9	2,306	62,283,314	27,118	3.9	20.5	54.7	1,436,169
35.9	1,771	45,311,170	26,561	3.6	18.9	50.7	1,322,941
31.5	1,501	39,027,632	25,361	2.9	17.9	46.9	1,215,178
25.6	1,379	36,212,140	23,608	1.9	15.4	42.5	1,099,139

Cost Control							
Grain Bought per Cow	Grain Bought per Cwt.	% Grain is of Milk Receipts	Machinery Costs per Cow	Labor & Machinery Costs/Cow	Feed & crop Expenses per Cow	Feed & Crop Expenses per Cwt. Milk	Hired Labor Cost per Wkr. Equivalent
(12)	(12)	(12)	(14)	(14)	(12)	(12)	(14)
\$1,194	\$4.78	28	\$611	\$1,288	\$1,533	\$6.13	\$37,165
\$1,400	\$5.30	31	\$720	\$1,580	\$1,731	\$6.57	\$40,822
\$1,493	\$5.66	33	\$773	\$1,657	\$1,815	\$6.98	\$42,326
\$1,581	\$6.01	35	\$884	\$1,789	\$1,986	\$7.47	\$45,246
\$1,766	\$6.71	38	\$1,001	\$1,985	\$2,138	\$8.10	\$53,879

Value of Production			Profitability				
Milk Receipts Per Cow	Milk Receipts Per Cwt.	Opr. Cost Milk Production per Cwt.	Total Cost Milk Production Per Cwt.	% Rate of Return on All Capital w/o Apprec.	Net Farm Income Without Apprec.	Labor & Management Income per Operator	Change in Net Worth with Apprec.
(12)	(12)	(12)	(12)	(4)	(4)	(4)	(8)
\$4,907	\$18.20	\$13.02	\$16.85	6.0	\$1,796,068	\$242,053	\$1,552,285
\$4,692	\$17.59	\$13.84	\$17.83	3.5	\$769,940	-\$12,599	-\$34,147
\$4,542	\$17.17	\$14.63	\$18.55	2.1	\$369,678	-\$108,455	-\$362,934
\$4,359	\$16.82	\$15.66	\$19.22	0.7	\$100,649	-\$256,349	-\$753,851
\$3,986	\$16.28	\$17.72	\$21.21	-3.5	-\$760,264	-\$880,594	-\$2,141,195

Financial Efficiency							
Investment per Cow	Machinery Investment per Cow	Asset Turnover Ratio	Operating Expense Ratio	Debt Coverage Ratio	Planned Debt Payments per Cow	Percent Equity	Working Capital as % of Opr. Expense
(14)	(14)	(14)	(14)	(10)	(12)	(7)	(7)
\$8,606	\$904	0.57	0.77	15.57	\$65	95	77
\$9,928	\$1,379	0.50	0.80	1.81	\$351	75	28
\$11,290	\$1,628	0.45	0.84	1.21	\$568	60	20
\$13,227	\$1,941	0.39	0.88	0.71	\$658	53	13
\$16,552	\$2,646	0.32	0.98	-0.41	\$863	40	-1

⁴² Page number of the participant's DFBS where the factor is located.

Farm Business Charts

The Farm Business Chart is a tool that can be used in analyzing a business by drawing a line through the figure in each column that represents the current level of management performance. The figure at the top of each column is the average of the top 10 percent of the 156 farms for that factor. The other figures in each column are the average for the second 10 percent, third 10 percent, etc. **Each column of the chart is independent of the others.** The farms that are in the top 10 percent for one factor would not necessarily be the same farms that make up the top 10 percent for any other factor.

The cost control factors are ranked from low to high, but the lowest cost is not necessarily the most profitable. In some cases, the "best" management position is somewhere near the middle or average. Many variables affect the level of costs, and must be taken into account when analyzing these factors.

Table 75.

FARM BUSINESS CHART FOR FARM MANAGEMENT COOPERATORS

156 New York Dairy Farms, 2018

Size of Business			Rates of Production			Labor Efficiency	
Worker Equiv- alent	No. of Cows	Pounds Milk Sold	Pounds Milk Sold Per Cow	Tons Hay Crop DM/Acre	Tons Corn Silage Per Acre	Cows Per Worker	Pounds Milk Sold Per Worker
51.2	2,863	74,295,301	28,779	4.9	23.8	67.7	1,709,730
32.9	1,585	41,154,209	27,647	4.1	22.1	58.0	1,473,325
26.3	1,315	34,912,055	27,110	3.7	20.9	53.3	1,363,650
22.9	1,097	29,344,519	26,591	3.5	20.0	50.1	1,280,291
19.4	912	23,822,963	25,929	3.3	19.3	47.8	1,210,680
15.3	717	17,876,283	25,234	3.0	18.5	45.4	1,152,492
11.0	527	12,814,257	24,669	2.7	17.7	43.0	1,070,503
7.2	331	7,848,231	23,448	2.4	16.7	39.7	953,422
4.4	166	3,672,984	21,366	2.0	14.6	33.8	790,603
2.4	71	1,323,663	15,488	0.8	5.4	25.1	472,604
Cost Control							
Grain Bought Per Cow	% Grain is of Milk Receipts	Machinery Costs Per Cow	Labor & Machinery Costs Per Cow	Feed & Crop Expenses Per Cow	Feed & Crop Expenses Per Cwt. Milk		
\$818	25%	\$476	\$1,170	\$1,077	\$5.63		
1,151	29	644	1,442	1,430	6.28		
1,255	31	719	1,583	1,595	6.62		
1,365	32	768	1,667	1,705	6.92		
1,454	34	853	1,777	1,776	7.18		
1,518	35	896	1,858	1,847	7.46		
1,585	36	932	1,923	1,951	7.65		
1,665	37	1,002	2,014	2,040	7.87		
1,739	39	1,094	2,164	2,130	8.14		
1,883	42	1,445	2,769	2,352	8.952		

The profitability section shows the variation in farm income by decile and enables a dairy producer to determine where he or she ranks by using several measures of farm profitability. Remember that each column is independently established and the farms making up the top decile in the first column will not necessarily be on the top of any other column. The dairy producer who ranks at or near the top of most of these columns is in a very favored position.

Table 75. (continued)

**FARM BUSINESS CHART FOR
FARM MANAGEMENT COOPERATORS**
156 New York Dairy Farms, 2018

Milk Receipts Per Cow	Milk Receipts Per Cwt.	Operating Cost Milk Production Per Cow	Operating Cost Milk Production Per Cwt.	Total Cost Milk Production Per Cow	Total Cost Milk Production Per Cwt.	
\$5,053	\$19.15	\$2,438	\$12.84	\$3,756	\$16.71	
4,795	18.01	3,154	13.69	4,335	17.86	
4,672	17.64	3,436	14.27	4,573	18.46	
4,574	17.44	3,644	14.68	4,800	18.99	
4,461	17.27	3,816	15.1	4,968	19.48	
4,354	17.09	3,958	15.51	5,103	20.05	
4,191	16.88	4,094	15.86	5,243	20.86	
3,980	16.64	4,257	16.30	5,411	21.97	
3,718	16.37	4,389	17.14	5,643	23.63	
2,611	15.83	4,782	19.98	6,238	30.70	
Profitability						
Net Farm Income Without Appreciation			Net Farm Income With Appreciation		Labor & Management Income	
Total	Per Cow	Operations Ratio	Total	Per Cow	Per Farm Per Operator	
\$1,110,693	\$643	0.14	\$1,290,201	\$693	\$466,862	\$213,902
390,189	373	0.08	431,825	413	23,105	9,995
151,317	266	0.07	250,183	304	-35,314	-17,669
49,167	139	0.05	140,503	236	-68,859	-42,010
13,232	24	0.03	70,064	150	-136,739	-64,980
-26,752	-51	0.01	27,931	68	-204,997	-99,502
-83,644	-218	-0.01	-19,575	-65	-291,423	-134,192
-188,364	-384	-0.05	-81,441	-211	-388,980	-175,558
-365,994	-664	-0.10	-192,073	-384	-585,029	-263,520
-1,058,385	-1,414	-0.28	-695,511	-985	-1,187,137	-714,366

The farm financial analysis chart is designed similarly to the farm business chart and may be used to measure the financial health of the farm business.

Table 76.

FINANCIAL ANALYSIS CHART							
156 New York Dairy Farms, 2018							
Liquidity/Repayment							
Planned Debt Payments Per Cow	Available for Debt Service Per Cow	Cash Flow Coverage Ratio	Debt Coverage Ratio	Debt Paymt. as Percent of Milk Sales	Debt Per Cow	Working Capital as % of Total Expenses	Current Ratio
\$ 9	\$1,080	22.99	20.79	1%	\$ 135	74%	56.80
145	849	3.39	2.07	7	1,158	39	7.52
260	731	1.61	1.44	11	2,385	31	4.17
383	611	1.21	1.07	13	3,431	25	3.24
526	519	0.93	0.83	15	4,060	21	2.42
615	435	0.69	0.63	17	4,698	16	1.92
711	307	0.51	0.43	19	5,147	13	1.57
799	193	0.36	0.25	22	5,660	7	1.21
900	78	0.15	-0.07	26	6,442	-2	0.85
1,106	-347	-1.66	-2.21	41	7,669	-25	0.34
Solvency				Operational Ratios			
Leverage Ratio ⁴³	Percent Equity	Debt/Asset Ratio		Operating Expense Ratio	Interest Expense Ratio	Depreciation Expense Ratio	
		Current & Intermediate	Long Term				
0.01	99%	0.01	0.00	0.76	0.00	0.03	
0.11	92	0.10	0.00	0.79	0.01	0.05	
0.28	80	0.21	0.07	0.82	0.02	0.06	
0.41	72	0.29	0.18	0.83	0.03	0.07	
0.51	68	0.35	0.26	0.84	0.04	0.08	
0.66	62	0.40	0.33	0.87	0.04	0.09	
0.81	56	0.44	0.40	0.89	0.05	0.10	
0.96	52	0.52	0.46	0.91	0.05	0.11	
1.33	44	0.61	0.58	0.94	0.06	0.12	
10.07	27	0.93	1.00	1.09	0.09	0.20	
Efficiency (Capital)				Profitability			
Asset Turnover (ratio)	Real Estate Investment Per Cow	Machinery Investment Per Cow	Total Farm Assets Per Cow	Change in Net Worth With Appreciation	Percent Rate of Return with Appreciation on:		
					Equity	Investment ⁴⁴	
0.67	\$ 2,383	\$ 666	\$ 7,171	\$ 1,010,053	5%	5%	
0.53	3,625	1,133	9,178	136,646	2	3	
0.49	4,198	1,434	10,106	30,427	0	2	
0.45	4,561	1,680	10,888	-31,472	-2	0	
0.42	4,892	1,919	11,605	-90,565	-4	-1	
0.39	5,485	2,192	12,157	-182,213	-5	-2	
0.36	6,162	2,452	12,928	-283,980	-8	-3	
0.33	6,950	2,697	14,016	-409,952	-11	-5	
0.28	7,862	3,181	15,654	-645,379	-16	-8	
0.18	11,007	4,791	20,101	-1,672,462	-36	-14	

⁴³Dollars of debt per dollar of equity, computed by dividing total liabilities by total equity.

⁴⁴Return on all farm capital (no deduction for interest paid) divided by total farm assets.

GLOSSARY AND LOCATION OF COMMON TERMS

Accounts Payable: Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians, and other providers of farm services and supplies.

Accounts Receivable: Outstanding receipts from items sold or sales proceeds not yet received, such as the payment for December milk sales received in January.

Accrual Accounting: (defined on page 13).

Accrual Expenses: (defined on page 16).

Accrual Receipts: (defined on page 16).

Annual Cash Flow Statement: (defined on page 23).

Appreciation: (defined on page 17).

Asset Turnover Ratio: (defined on page 42).

Available for Debt Service per Cow: Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average Top 10% Farms: Average of 16 farms with highest rate of return on all capital (without appreciation).

Balance Sheet: A "snapshot" of the business financial position at a given point in time, usually December 31. The balance sheet equates the value of assets to liabilities plus net worth on a market value basis.

Barn Types: Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

Business Records: Account Book: any organized farm record book or ledger. Accounting Service: any hired recordkeeping service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency: The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital. (See analysis, page 42).

Capital Investment: Commonly used as substitute term for farm capital or total farm assets.

Cash Flow: The movement of money in and out of the business over a given period of time, e.g. one year. (See Annual Cash Flow Statement, page 23).

Cash Flow Coverage Ratio: (defined on page 24).

Cash From Nonfarm Capital Used in the Business: Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases.

Cash Paid: (defined on page 14).

Cash Receipts: (defined on page 16).

Change in Accounts Payable: (defined on page 16).

Change in Accounts Receivable: (defined under Accrual Receipts on page 16).

Change in Advanced Government Receipts: (defined under Accrual Receipts page 16).

Change in Inventory: (defined on page 14).

Corporation: Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages' and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. (See page 32).

Cost of Term Debt: A weighted average of the cost of borrowed intermediate and long term capital used on the farm. Calculated by multiplying end of year principal of each loan that is borrowed by the interest rate for each loan at that time. Add up each amount that is calculated for each loan and then divide by total amount of borrowed funds. Does not include accounts payable, operating debt or advanced government receipts. This information is found on pages 8 & 9 of the data entry form.

Culling Rate: Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year.

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt expected to be repaid within 12 months.

Current Portion: Principal due in the next year for intermediate and long term debt.

Current Ratio: Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at end year divided by current farm liabilities at end year.

Dairy Cash-Crop (farm): Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

Dairy Farm Renter: (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate: All grains, protein supplements, milk substitutes, minerals, and vitamins purchased and fed to the dairy herd.

Dairy Records: DHI: Dairy Herd Improvement official milk production records. Owner Sampler: weights and samples are taken by farmer but tested by DHI. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage: All hay, silage, or other fodder purchased and fed to the dairy herd.

Death Rate: The percentage of the average number of milking and dry cows that died during the year.

Debt Coverage Ratio: (defined on page 24)

Debt Per Cow: Total end-of-year debt divided by end-of-year number of cows.

Debt to Asset Ratios: (defined on page 21).

Depreciation Expense Ratio: The percentage of total accrual receipts that is charged to depreciation expense (machinery and building).

Dry Matter: The amount or proportion of dry material that remains after all water is removed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital: The farm operator/manager's owned capital or farm net worth.

Expansion Livestock: (defined on page 14).

Farm Business Chart: (see definition and application on page 77).

Farm Capital: Average total farm assets.

Farm Debt Payments as Percent of Milk Sales: Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts. A reliable measure of repayment ability. (See page 24.)

Farm Debt Payments Per Cow: Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year. This measure of repayment ability is used in the Financial Analysis Chart on page 79.

Financial Lease: A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop: All hay land, including new seedings, harvested once or more per year as hay or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, non-wage compensation, payroll taxes, benefits, and perquisites paid employees.

Hired Labor Expense as % of Milk Sales: The percentage of the gross milk receipts that is used for labor expense. Divide accrual hired labor expense by accrual milk sales.

Hired Labor Expense per Hired Worker Equivalent: The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents.

Income Statement: A complete and accurate account of accrual adjusted farm business receipts and expenses used to measure net income over a period of time such as one year or one month.

Intensive Grazing: The dairy herd is on pasture at least three months of the year, changing paddocks at least every three days and percent of forage from pasture is at least 30 percent.

Interest Expense Ratio: The percentage of total accrual receipts that is used for interest expense

Intermediate (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

Labor and Management Income: (defined on page 18).

Labor and Management Income Per Operator: (defined on page 18).

Labor Efficiency: Production capacity and output per worker. (See analysis on pages 42 and 43).

Labor Force: Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed. Hired: All other employees hired by the farm.

Liquidity: Ability of business to generate cash to make debt payments or to convert assets to cash.

Leverage Ratio: (defined on page 21).

Long-Term (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

Milk Marketing (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses.

Milking Frequency: 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.

Milking Systems: Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and then pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone, parallel, parabone, and rotary parlors are identified specifically. Other Parlors would include milking systems such as flat barn parlors and automatic milking systems.

Net Farm Income: (defined on page 17).

Net Farm Income from Operations Ratio: Net farm income (without appreciation) divided by total accrual receipts

Net Milk Income over Purchased Concentrate Per Cow: Milk receipts less milk marketing expense less purchased grain and concentrate expense, all divided by average number of cows.

Net Milk Receipts: The mail box price received by farmers before any farmer authorized assignment or deductions.

Net Worth: The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

Nondairy Feed: All grain, concentrates, and roughage purchased and fed to nondairy livestock.

Nonfarm Noncash Capital: (defined on page 16).

Nontillable Pasture: Permanent or semi-permanent pasture land that is not be included in a regular crop rotation.

Operating Costs of Producing Milk: (defined on page 32).

Operating Expense Ratio: The percentage of total accrual receipts that is used for operating expenses, excluding interest and depreciation.

Opportunity Cost: The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

Other Forage: All forage crops harvested but not included as hay crops or corn silage, e.g. oats, barley, and sudan grass harvested as roughage.

Other Livestock Expenses: All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include but not limited to; hauling and livestock marketing commissions, ear tags, leg bands, neck bands, hand scrapers.

Owner/Operator Resources Per Hundredweight: The total value of equity, management, and labor contributed to the farm from all owner/operators. This measure is calculated by adding the interest on equity capital to the value of labor and management for all owner/operators and dividing by the hundredweight milk produced during the year.

Part-Time Dairy (farm): Dairy farming is the primary enterprise, cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

Partnership: Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

Percent of Heifer Inventory Custom Inventory: The percent of current heifer inventory owned by the farm that is being custom raised off the farm.

Percent of Replacements Purchased: The percent of animals in the herd that calved for replacement purposes (not expansion cattle) that were different genetic background than your herd and were purchased.

Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments: All the money removed from the farm business for personal or nonfarm use including family living expenses, health and life insurance, income taxes, nonfarm debt payments, and investments.

Premium: In milk marketing this typically refers to the amount paid for milk in addition to the minimum regulated price. Premiums may be paid to the producer or cooperative supplier of milk by a buyer depending on a variety of criteria such as milk quality, composition, quantity supplied, or services provided. They may also represent market supply/demand conditions not adequately accounted for in the regulated price.

Prepaid Expenses: (defined on page 15).

Producer Price Differential: Under Federal Order markets with multiple component pricing, it is the residual value (per hundredweight) of the pool after deducting component payments (protein, butterfat, and other solids) to producers. This residual value will vary between market orders and from month-to-month based on the utilization of the various classes and class price. It is possible that the PPD can even be negative at times if, for example, the class III price exceeds the class I price.

Profitability: The return or net income the owner/manager receives for using one or more of his or her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

Purchased Inputs Costs of Producing Milk: (defined on page 32).

Repayment Analysis: An evaluation of the business' ability to make planned debt payments.

Replacement Livestock: Dairy cattle and other livestock purchased to replace those that were culled or sold from the herd during the year.

Return on Equity Capital: (defined on page 19).

Return Per Hundredweight To Operator's Labor, Management and Capital: Gross Milk receipts less purchased input costs less unpaid family labor, all divided by total hundredweight of milk sold.

Return to all Capital: (defined on page 19).

Sell Rate: The percentage of the average number of milking and dry cows that were sold for culling reasons. Animals that were sold as replacement stock to other dairy farms are not included in this number.

Sole Proprietorship: Business is owned by one individual but there may be more than one operator.

Solvency: The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized Dairy Farm: A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation): (defined on page 22).

Stocking Rate: (defined on page 28).

Taxes (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are a personal expense for all non-corporate taxpayers.

Tillable Acres: All acres that are normally cropped including hay land that is pastured. Acres that are doubled cropped are counted once.

Tillable Pasture: Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk: (defined on page 32).

Value of Calf Sold: The average value received for bull and heifer calves sold as calves during the year.

Value of Cow Sold: The average value received for animals that were sold for culling reasons.

Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

Worker Equivalent: The number of full-time workers equivalent to all the full and part-time people working throughout the year. Operator and family labor is included. Worker equivalents are determined by converting all work to full-time months (based on a 230 hours per month) and dividing by 12.

Working Capital: A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at end year less current farm liabilities at end year.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
2020-07	Dairy Farm Business Summary New York State 2018		Karszes, J, Hill, L, Christman, A, and Knoblauch, W.
2020-06	Sensitivity Analysis of Profits for V. Vinifera Grapes in the Finger Lakes Region of New York - 2019		Davis, T., and Gomez, M.
2020-05	Progress of the Dairy Farm Report Selected Financial and Production Factors Dairy Farm Business Summary New York State, 2019 153 Farms		Karszes, J., Hill, L., and Knoblauch, W.
2020-04	Business Tools for NYS Berry Growers		Williams, K., Kalaitzandonakes, M., Gómez, M.
2020-03	Regional Grass Fed Beef Supply Chain		Kalaitzandonakes, M., Gómez, M., and Peters, C.
2020-02	Cost of Establishment and Production of Cold Hardy Grapes in the Chautauqua Region of New York - 2019		Davis, T., Gómez, M., Moss, R., Martin, K., and Walter-Peterson, H.
2020-01	Cost of Establishment and Production of V. Vinifera Grapes in the Finger Lakes Region of New York - 2019		Davis, T., Gómez, M., Moss, R., Walter-Peterson, H.
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